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Medical factors were assessed in 20 children (grades 1 to 10) with behavior and learning problems, and an educational program was subsequently offered. All 20 had their case histories taken, were given pediatric and open electroencephalograph examinations, and were evaluated by psychological tests. One team of physicians found no clearly defined neurological abnormalities; another team rated 10 of the 20 records as evidencing neurological impairment. Two pairs of psychologists also differed in their diagnoses. The ratings of the medical and psychological diagnoses were found to differ significantly ($p=.01$). The educational program included the following: a special class, with individualized instruction for eight to 12 children, taught by a regular teacher assisted by a mental health specialist and the school guidance and curriculum staff; a learning disabilities group, providing a specialist's instruction in remedial work for two to eight children; an activity group, structured as a club with craft and play sessions, conducted after school for six to eight children; and group counseling for the junior and senior high school students in groups of 10. Reading and achievement scores taken over a 2-year period indicated an average gain for the group as a whole exceeding what would be expected from pupils in regular classes. (JW)

PROBLEMS
IN
DETERMINING THE ETIOLOGY
OF
LEARNING AND BEHAVIOR HANDICAPS

REPORT OF A STUDY

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CALIFORNIA STATE DEPARTMENT OF EDUCATION
MAX RAFFERTY, Superintendent of Public Instruction
SACRAMENTO, 1964

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PROBLEMS IN DETERMINING THE ETIOLOGY OF LEARNING AND BEHAVIOR HANDICAPS

REPORT OF A STUDY

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FOREWORD

California schools are highly successful in providing equal educational opportunities for all. And although they are not totally successful in making it possible for all to profit fully from these opportunities, they spare no effort in their endeavor to do so. They maintain regular education programs that are strong and that meet the needs of most pupils; extended and enriched programs, for the gifted; and special programs, for the mentally retarded, the physically handicapped, the cerebral palsied, and the culturally deprived. But these provisions are not adequate to meet the needs of every pupil who enrolls in the schools as evidenced by dropouts and by failures.

The study, "Problems in Determining the Etiology of Learning and Behavior Handicaps," was undertaken to determine how pupils who are unable to profit fully from their educational experiences because of emotional problems might be helped. The results of this study should be of special interest to school administrators and others who are concerned with the problems of the emotionally disturbed pupil, especially those who are seeking ways to eliminate the problems or at least to hold the undesirable effects of these problems to a minimum.

Max Rafferty

Superintendent of Public Instruction

PREFACE

California provides special educational help for a variety of handicapped pupils. At the present time there are programs for severely and moderately retarded pupils and for all types of physically handicapped pupils. Children with learning and behavior problems who do not qualify for any of these types of programs but whose emotional difficulties handicap them from profiting from existing educational provisions face a school life punctuated with difficulties in learning, unsatisfactory peer and adult relationships, dropping out or exclusion from school, and eventual possible commitment.

Increased public concern over the public and private costs of emotional and social breakdown places greater emphasis on the school as the institution responsible for early identification, help, and referral. In order for the school to fulfill this role, the procedure for early identification and diagnosis of particular learning or behavioral difficulties is a first step in establishing educational programs to assist such pupils with their problems. Effective identification procedures require that all the factors that influence a child's school problems must be surveyed to determine (1) the nature of the difficulty; (2) the specific role of the school in assisting the child; and (3) evaluation of the educational provisions which should be made available. Medical, psychological, social, and educational areas comprise the fields of investigation in a typical diagnosis of a child with school problems.

This study is one of several conducted by the staff of the State Department of Education to evaluate the status of pupils identified as emotionally handicapped. The purpose of this report is to illuminate some of the problems inherent in making a medical diagnosis of related organic impairments in a sample of pupils identified as emotionally handicapped with severe learning and behavior problems in school.

This project emphasizes the fact that there is no simple, clear-cut explanation of the causes of the complex problems which face pupils who are unable to profit from existing educational provisions. In the etiology of the learning and behavior problems of a particular child, as great a variety of pertinent information as possible must be collected, and the data must be related to a planned educational program for that child. So far, we cannot point to any etiological pattern upon which a specific educational program can be based. Diagnostic labels, which explain an individual pupil's problems without specifying an educational plan to meet the pupil's particular learning needs, offer false security. We must continue to find ways to assist the pupil with problems to be successful in school.

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Instruction; and Chief, Division
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Chapter 1

INTRODUCTION

In these days of high-speed data processing, computing machines are being developed which are capable of reproducing a variety of thinking processes with several thousand times the speed of the human brain. A short circuit in a computer will cause a faulty answer which can be corrected fairly easily by locating the poor connection and repairing it. Contrary to the processes of the human brain, there is a close one-to-one relationship between the data which are put into the machine and the results which come out, and there are few uncontrolled intervening variables which affect the results of computer thinking. Such computers offer a highly reliable procedure for handling, with considerable economy, some types of complicated human brain work. Confronted with the difficulty of understanding and assisting pupils with severe learning and behavior deviations, the educator might wish that human behavior would be as simple to understand as computer behavior and as easy to remedy as are computer short circuits.

Psychologists have been trying for years to relate the mysteries of cortical activity to human behavior. Physiologists will perhaps unravel the skein of nerve tissue one day and be able to provide data which the psychologists can use in finding a behavioral correlate for a specific type of nervous activity. However, we are not yet at that point in understanding behavior and behavior deviations. Although we know that cortical and nervous system activity is related to behavior, we do not know the specific parts of the nervous system which can be identified with brain function or malfunction in relation to resultant behavior, and with the exception of a few distinct cases, we are at an inferential stage. Even with the further development of understanding the processes of the nervous system, it is doubtful that behavioral science will be able to arrive at a level relatively as simple as data processing.

All behavior initiated within the network of the nervous system must be mediated through the human organism, and the complexity of this intervening variable is responsible for much of the lag in the behavioral sciences. Behavioral scientists agree that an individual's behavior is the result of genetic, constitutional, and environmental factors mediated by the sum of his experiences. When the educator is faced with a pupil who has difficulty profiting from a given educational program, it is common practice to examine the child's family history, his health, and his social environment for help in understanding the pupil's failure in the learning process. When the learning and behavior problems of pupils are found to have common ingredients, these pupils are studied as a homogeneous group in an attempt to correlate the homogeneity of the children's etiological patterns with the similarity of their educational and behavioral difficulties.

Examples of treatment of etiological factors in educational programs are programs for those neurologically handicapped pupils who have been identified for study because of specific types of behavior and learning problems with accompanying signs of prenatal or postnatal injury to the nervous system or genetic factors resulting in measurable deviations. But in educational programs of this type, even when there are definite signs of some neurological impairment, and we infer that the impairment has caused the pupil's educational and behavioral difficulty, we cannot infer that other pupils with similar neurological difficulties would have similar educational problems. This fact has been fairly well established by R. W. MacNeven,[1] W. M. Cruikshank,[2] R. D. Walter[3] and other researchers who have found that there are diverse patterns of educational and behavior difficulty even within a group with clear-cut medical diagnoses. There is better understanding of cause-effect relationships in the development of problems for a few children when the etiology and the problems are correlated; however, for most of the children with learning and behavior difficulties, the etiology and problems are not correlated and few etiological clues can be found from the medical reports. In spite of the difficulties inherent in establishing relationships between etiology and behavior, physicians, psychologists, and educators continue to search for connections between brain and nervous system pathology in cases of severe learning and behavior disabilities in efforts to make comprehensive case studies. Although diagnosis of neurological impairment offers a clear-cut explanation for the pupil's problems and the opportunity to use an extensive body of specific educational techniques, the psychologist and the educator are still faced with the responsibility for explaining the learning and behavior problems of all pupils and for recommending specific educational assistance for those who do not have a positive medical diagnosis.

Cruickshank's studies on hyperactive pupils with learning disabilities showed that a neurological diagnosis was not positive in all such cases. Since all the pupils identified with behavior and learning problems needed help, he concluded that the most useful method of classifying them was to resort to the descriptive category "hyperactive children with learning disabilities." The use of a descriptive category does not indicate a denial of the etiological factors of a specific problem. It does mean, however, that the physician, psychologist, and educator must go back to the investigation of the genetic, constitutional, and environmental factors which contribute to a child's difficulty and plan an educational program that will have meaning for him. The educator does not have the security of a complete, well-planned educational program nor the false security of complete understanding of the child's problem, but he still has the child, the child's problem, and the job of bringing to that child all of the educational resources that might lead to solution or remediation of his difficulty.

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[1] R. W. MacNeven and Others, "The Function of a Psychiatric Diagnostic Unit in the School System." Presented at the American Orthopsychiatric Association Meeting, San Francisco, California, May 1, 1959.

[2] W. M. Cruikshank and Others, Teaching Methodology for Brain-Injured and Hyperactive Children. Syracuse, N. Y.: Syracuse University Research Institute, 1960.

[3] R. D. Walter and Others, "A Controlled Study of the Fourteen- and Six-Per-Second EEG Pattern," Archives of General Psychiatry (American Medical Association), II (1960), 559-66.

Children whose learning or behavior problems have been given similar descriptive classifications may have similar learning difficulties but dissimilar etiological patterns. From the standpoint of the school, the learning situation must meet the child at a level where he can be successful. If efficiency can be served by grouping children of similar educational and behavioral problems together, such educational planning would be an appropriate procedure.

Among the descriptive categories that are presently being used in the public schools in California to designate pupils who are not able to profit from existing educational programs are "emotionally disturbed children," "emotionally handicapped children," "neurologically handicapped children," "culturally deprived children," "delinquents," "dropouts," and "divergent youth." Although these categories are by no means inclusive of all the types of problems confronted by the schools in designating pupils with learning and behavior difficulties, they indicate the variety of such problems with which the schools are presently concerned. Since one element is common to all such pupils--failure to profit from existing educational provisions--a descriptive category which would incorporate all of their problems would be useful in programs designed to give them the special help they need.

BACKGROUND OF THE PROJECT

The California State Legislature passed into law in 1957 a bill authorizing the State Department of Education to conduct a study of educational programs and identification procedures for emotionally disturbed pupils. A sample of pupils in this category was subsequently identified and helped in a variety of educational programs in several school districts in California. Research on these programs has demonstrated that the learning and behavior problems of emotionally disturbed pupils were diverse and often undifferentiated. These pupils had been identified previously as "neurologically handicapped," "delinquent," "potential dropouts," "emotionally disturbed," "severe learning problems," or in other terms. In short, pupils who were then identified as being "emotionally handicapped" were the same types as those who are currently being referred to as "emotionally disturbed," "neurologically handicapped," "culturally deprived," and "divergent youth." After a search had been made for a general term which would be useful in designating this complex segment of the school population, "emotionally handicapped" was chosen, because the primary explanation of the difficulty was that something had gone wrong with the complicated mechanisms which mediate behavior in all of these pupils. Consistent patterns related to genetic, hereditary, familial, cultural, intellectual, or social factors could not be found in this population. Although the origins of a pupil's problem could be found in these areas, the origins varied with each pupil. "Emotionally handicapped" may not be the most adequate term to use to describe pupils with marked learning and behavior problems, but it does give emphasis to the source of the difficulty, focusing on the mechanism which mediates the behavior of such pupils, regardless of the etiology of specific problems. While a variety of data collected during the research project supports this view, this report concentrates on the material which was collected on the pediatric and neurological status of the pupils identified as emotionally handicapped. Other aspects and findings of the project, including the divergency of the high school population, and socioeconomic patterns of the emotionally handicapped group can be found in the final report of the project, The Education of Emotionally Handicapped Children.[4]

PURPOSE OF THE PROJECT

The research staff working on the project conducted by the State Department of Education to study educational programs for emotionally handicapped pupils included as part of its investigations a survey of the neurological and pediatric problems of pupils identified as emotionally handicapped. The purpose of this additional survey was to determine whether or not medical factors in the records of a sample of emotionally handicapped pupils were of sufficient significance to warrant further identification procedures before providing a specific educational program. This survey of neurophysiological pathology in a sample of emotionally handicapped pupils was especially timely since the public schools in Los Angeles County, with the help of the State Department of Public Health and the State Department of Education, were studying educational programs for pupils who had been diagnosed as neurologically handicapped after their teachers had noted their severe learning and behavior difficulties. Additional goals of this survey were to determine the extent of an overlap between the two classifications, "emotionally handicapped" (EH) and "neurologically handicapped" (NH), if such an overlap existed, and to clarify the problems faced by pupils identified as emotionally handicapped either with or without neurophysiological deviations in the specific educational programs which were being evaluated.

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[4] E. M. Bower, The Education of Emotionally Handicapped Children. A Report to the California Legislature. Prepared Pursuant to Section 1, Chapter 2385, Statutes of 1957. Sacramento: California State Department of Education, 1961.

THE SAMPLE

From a representative sample of 53 pupils picked at random from those identified as emotionally handicapped, 20 were examined at the University of California Medical Center in Los Angeles by Herbert Grossman, M. D., and Richard Walter, M. D., both on the staff of that institution. The 53 students were enrolled in four different school districts that provided experimental programs for emotionally handicapped pupils in special classes, learning disability groups, or group counseling classes. The parents of the 53 pupils were given the opportunity to have their children examined at the Medical Center, and if they did not wish to follow through with the examination, they were not urged to do so. Of the 53 parents thus contacted, 36 stated that they would like to take advantage of the opportunity for a pediatric and neurological workup, and of these, the parents of 20 pupils were able to make and keep their appointments. There was no "selection" of these 20 pupils except through a process of elimination, the others and their parents having withdrawn because of lack of interest or inability to make an appointment. These 20 pupils can be considered representative of those identified in the schools as emotionally handicapped.

PROCEDURE

Medical and psychological examinations were essential in establishing the pediatric, neurological, and intellectual status of these emotionally handicapped pupils. For purposes of this study, medical findings, including personal and family history, were needed as well as pediatric, neurological, and electroencephalographic (EEG) examinations. Psychological data to support or clarify the medical findings were also needed. The case material collected during the identification procedure used in the project was adequate. The costs of the medical and psychological examinations were paid from project funds and were handled by the schools in the same manner as routine physical or referral examinations. Psychological examinations had been administered prior to the conduct of this particular study. The procedure for contacting parents and making appointments for the physical and neurological examinations, which were given at the University of California at Los Angeles, included the following steps:

1. The plan was discussed with the school doctor and nurse and cleared through the school district superintendent.

2. The list of pupils identified in the spring of 1958 as emotionally handicapped was used to contact all parents of pupils on the list. Every parent was contacted. If one did not come to the school for the interview, the pupil was dropped from the list.

3. When the parent conference was held, the parents were informed that the school district was making available a school physical examination to determine whether medical factors were contributing to the pupil's

problems in adjusting to school. Each parent was told that the purpose of the physical examination was not to provide treatment, but to investigate the health status of his child. The procedure for the examination was discussed, and every parent was told that his child would have an EEG as part of the procedure.

4. The parents could obtain the results of the examinations by writing to Dr. Grossman requesting that a report be sent to the family physician in charge of the pupil.
5. Once parents had given their consent for the examinations, Dr. Grossman's office contacted them directly to make the appointments; cancellations and management of the schedule were handled by his office.

The psychological examinations administered at school by a number of psychologists working on the project included the Wechsler Intelligence Scale for Children, the Bender Visual Motor Gestalt Test, and the Draw a Person Test. The results of these tests, along with achievement test data and a school history for each pupil, were collected and used subsequently by Irla Lee Zimmerman, Clinical Psychologist, in reviewing the records of the pupils to determine whether or not there were any organic patterns in the psychological data.

Of the 20 pupils on whom this report was made, two were in the first or second grade; three, in the fourth or fifth grade; 11, in grades six to eight; and four, in high school in the tenth grade. Only three of the 20 pupils were girls.

Coincident with the medical examination of this sample of pupils in the program for the study of the emotionally handicapped, the public schools in Los Angeles County had initiated pilot programs for the education of pupils termed "neurologically handicapped." The pupils in this pilot program were nominated by teachers, reviewed by a team composed of a physician, a psychologist, and an educator, and given pediatric and neurological examinations, including the EEG. Since behavior problems and learning problems were common to both the emotionally handicapped and the neurologically handicapped groups, the opportunity to determine the overlap between these two groups presented itself. Therefore, an arrangement was made with the staff of the office of the Superintendent of Schools of Los Angeles County to have the medical and psychological records of the 20 pupils in this study reviewed by the pilot program staff to determine how many of the emotionally handicapped children would have qualified for their program. The medical staff of the county project did not see the pupils, but they used the complete family and medical histories as well as the EEG reports, the neurological, and the physical examination data to make their determinations. The psychologists in the county project used the psychological data prepared for each pupil, and neither they nor Dr. Zimmerman saw the pupils. Both groups, doctors and psychologists, were asked to list their criteria for ratings assigned to the collected data. These data are shown in the charts, "Comparison of Pertinent Criteria for Medical Evaluation" and "Comparison of Criteria for Psychological Evaluations," which appear on pages 14 and 24, respectively.

Chapter 2

RESULTS OF THE COMPARATIVE STUDY OF TWO DIAGNOSTIC TEAMS REVIEWING RECORDS OF EMOTIONALLY HANDICAPPED PUPILS

Current interest in the diagnosis of neurological impairment to determine the etiology of emotional handicaps does not represent a new approach to understanding problems presented by children with school difficulties. The early work of Kurt Goldstein on the aftereffects of brain injuries is typical of the long standing interest of physicians and psychologists in the physical and behavioral correlates of neurological impairment.[1] Lauretta Bender's study of the psychopathology of brain disorders in children is another example of early work in this field.[2] Such diagnostic procedure was primarily of medical interest until the work of A. A. Strauss and L. E. Lehtinen[3] which provided for educational techniques to assist children identified as brain injured. The concomitant increase in pharmaceutical research on medications which influence behavior resulted in increased interest on the part of pediatricians and neurologists in the possibility of mediating some of the more severe behavior problems with medicine.

Since the publication of the research of A. A. Strauss, Charles Bradley,[4] M. W. Laufer,[5] L. Oettinger,[6] and others, the diagnoses of hyperactivity with related neurological impairments have been increasingly popular. These research workers described the symptoms of the hyperactive child with learning disabilities--perceptual and motor handicaps, poor retention, poor concept formation, anxiety, and other patterns of delayed development--and postulated related neurological deficits. These symptoms were also typical of the group in the general medical category of children with "mild neurological handicaps," handicaps considered "mild" because there were no apparent physical disabilities, convulsions, or other signs of brain damage. The problem became more difficult when children had all the characteristics identified with mild neurological handicaps, but there was no basis in the medical findings for a diagnosis of brain injury, either mild or severe. Psychological tests were then relied upon to determine the nature of the child's concept formation, perceptual motor skills, and retention, and more emphasis was given to these types of data than to mildly offbeat electroencephalograms or to neurological data which were not conclusive.

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[1] Kurt Goldstein, After-Effects of Brain Injuries in War. New York: Grune & Stratton, 1942.

[2] Lauretta Bender, A Visual Motor Gestalt Test and Its Clinical Use. New York: American Orthopsychiatric Association, 1938.

[3] A. A. Strauss and L. E. Lehtinen, Psychopathology and Education of the Brain-Injured Child. Volume I, Fundamentals and Treatment of Brain-Injured Children. New York: Grune & Stratton, 1951.

[4] Charles Bradley, "The Behavior of Children Receiving Benzedrine." American Journal of Psychiatry, XCIV (November, 1937), 577-85.

[5] M. W. Laufer and E. Denhoff, "Hyperkinetic Behavior Syndrome in Children," Journal of Pediatrics, L (1957), 463-75.

[6] L. Oettinger, "The Medical Treatment of Behavior Problems," Mississippi Valley Medical Journal, LXXIV (1952), 74.

Much of the research in references included in the bibliography of this publication gives support to positive correlations of these specific behavioral signs with specific neurological or electroencephalographic data. The problem for the pupil personnel worker who wishes to increase his knowledge of the etiology of learning and behavior problems is that in most of this work one cannot be safe in making generalizations beyond the populations studied.

Seymour Sarason criticized A. A. Strauss' procedures for the diagnosis of the neurologically impaired child because (1) no evidence was offered that behavior and learning problems were a result of brain injury; (2) the characteristics of brain-injured children cannot be found to exist in that population alone; and (3) diagnosing brain injury on the basis of psychological tests assumes a degree of validity for these tests which does not seem warranted.[7] Sarason also stated that when a neurological examination is found to be negative, one is not justified in using specific personal history factors such as anoxia, prolonged labor, and feeding difficulties as conclusive evidence of organic impairment. Until base rates for all of these difficulties are established for the population, the degree to which any finding is particularly significant cannot be determined.

L. Eisenberg delineates some of the professional considerations which need to be made in inferring brain injury from specific behavior difficulties.[8] He notes that it is important to consider that the clinical features of known organic cases vary from case to case, and that the same symptoms can be found in cases without organic involvement. He also notes a reciprocal relationship between the child's neurological status and his environment, inadequate environment sometimes producing the same behavioral symptoms as known neurological impairment. Eisenberg stresses the fact that relationships between nervous structure and function, however useful they may be, cannot suffice for an understanding of the problems of the brain-injured child, and that evaluation of the child's behavior is impossible without psychiatric study both of the setting in which the behavior occurs and of the meaning of this setting to the child.

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[7] Seymour S. Sarason, Psychological Problems in Mental Deficiency (Third Edition). New York: Harper & Bros., 1959.

[8] L. Eisenberg, "Dynamic Considerations Underlying the Management of the Brain-Injured Child," General Practitioner, XIV (1956), 4.

William E. Block discusses mechanistic and dynamic theories of brain injury, citing W. M. Phelps, a mechanist, as an example.[9] Phelps attributed fundamental behavioral differences to the two major types of cerebral palsy solely on the basis of specific neuromuscular disability.[10] According to his stimulus-response theory, the spastic child would be introverted; the athetoid child would be extroverted. Block studied two groups of school children, half of whom were predominantly athetoid, the other half spastic, matched for age, IQ, socioeconomic status, ethnic group, and time of brain injury. Phelps' theory on either overt or unconscious behavioral tendencies was not sustained by the studies of Block, who stated, "The results agree--that the nature of the disability has no unique effect on personality." The differences with respect to area of brain injury as well as secondary physical defects in the groups that Block studied were a challenge to conditioning and organogenic explanations of personality in the brain-injured child. One can conclude, as Lee Meyerson did, that a disability is psychologically neutral.[11] Its ultimate effects depend on the social-psychological situation, the person's self-evaluation, and the barrier presented by the disability to universal goals. There is no doubt that a disability makes the child more vulnerable to normal life stresses by removing one or more of the specific resources with which the child can cope with his environment, but the specific effects of the disability are bound to vary from individual to individual and cannot be predicted on the basis of the disability alone.

The neurologically handicapped and the brain-injured constitute an extremely heterogeneous group. As T. Ernest Newland indicates, this group shows patterns of poor conceptualization in abstract problems, limited attention span, distractibility, unpredictability, poor reading achievement, autism, aggression, apathy, resistance, withdrawal, hyperactivity, and anxiety.[12] Not all of these characteristics can be found in any one child, and within a population of neurologically handicapped children there are an infinite number of variations of psychological and educational patterns.

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[9] William E. Block, "Personality of the Brain-Injured Child," Exceptional Children, XXI (December, 1954), 91-100, 108.

[10] W. M. Phelps, "Characteristics of Psychological Variations in Cerebral Palsy," The Nervous Child, I (1948), 10-13.

[11] Lee Meyerson, "Physical Disability as a Social Psychologist Problem," Journal of Social Issues, II (fall, 1948), 2-10.

[12] T. Ernest Newland, "Psycho-Social Aspects of the Adjustment of the Brain-injured," Exceptional Children, XXIII (January, 1957), 149-53.

"Brain-injured" or "chronic brain syndrome" (CBS), "mild neurological handicaps," "the neurological-endocrine handicapped" (NE), "hyperkinetic," "organic," "organic-driven," and "impulse ridden" are terms referring to children's learning and behavior difficulties. The terms mean different things to different people. In transferring the research findings from one population to another, one must take care that the selective criteria employed by different researchers are the same. Although there is little doubt that there are children whose brain injuries affect their learning and behavior, there is still a paucity of scientific proof that such conditions can be adequately diagnosed by a neurologist, pediatrician, electroencephalographer, psychologist, internist, or any combination of these. In MacNeven's study of the first 40 referrals from the Kansas City schools of hyperactive, impulsive children who most closely behaved like brain-injured children, the investigators concluded that "there apparently exists little or no correlation between hyperactivity and brain damage."[13]

RESULTS OF THE MEDICAL EXAMINATIONS AND COMPARISON OF THE MEDICAL RATINGS

It should be emphasized that no specific medical or neurological finding has been correlated with a specific behavioral manifestation. The physician traditionally has used many types of data in evaluating a given problem. These were enumerated with particular emphasis on their application in solving the complex diagnostic problems involved in determining the etiology of learning and behavior problems of emotionally handicapped children referred for medical diagnosis.

The medical diagnosis of neurophysiological pathology was based on the pupil's past history, history of the present problem, family history, pediatric examination, neurological examination, and EEG. The four types of ratings based on these data and the symbols designating the ratings were as follows: positive indication of pathology (+); no indication of pathology (-); equivocal findings (±); insufficient data (0). Table 1, "Comparison of Diagnoses of Neurophysiological Pathology of 20 Children with Learning and Behavior Difficulties Identified as Emotionally Handicapped," shows the findings of the two groups of physicians in terms of these ratings. The frequency of the ratings assigned to each category by each of the groups of physicians is shown at the end of Table 1.

Summary of the Ratings of Personal History and History of the Problem

A child's birth and developmental history is used typically by physicians to determine whether his developmental pattern can be considered within normal

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[13] R. W. MacNeven and Others, "The Function of a Psychiatric Diagnostic Unit in the School System." Presented at the American Orthopsychiatric Association Meeting, San Francisco, May 1, 1959.

Table 1

Comparison of Diagnoses of Neurophysiological Pathology of 20 Children with Learning and Behavior Difficulties Identified as Emotionally Handicapped

Case number	Sex	Medical diagnosis		Personal history and history of present problem		Family history		Pediatric examination		Neurological examination		EEG	
		Group[1]		Group		Group		Group		Group		Group	
		I	II	I	II	I	II	I	II	I	II	I	II
1	G	–	–	–	–	0	–	0	–	–	–	–	–
2	B	+	–	+	–	+	–	–	–	±	–	–	–
3	B	±	±	–	–	–	±	–	–	–	–	+	+
4	B	0	0	0	0	0	0	–	–	–	–	0	0
5	G	±	–	±	–	–	–	–	–	±	–	±	+
6	B	–	–	–	±	–	–	–	–	–	–	–	–
7	B	+	–	+	+	–	–	–	–	±	–	–	–
8	B	±	–	±	–	0	–	–	–	–	–	–	–
9	B	±	–	+	+	+	–	–	–	–	–	–	–
10	B	±	–	±	±	0	–	–	–	–	–	±	–
11	B	–	–	–	–	–	–	–	–	–	–	–	–
12	B	+	±	+	+	±	–	–	–	±	–	+	+
13	B	–	–	+	–	–	–	–	–	–	–	–	–
14	B	+	–	–	–	–	–	–	–	–	–	+	+
15	G	–	–	+	–	0	–	–	–	±	–	–	–
16	B	–	–	+	–	–	–	–	–	–	–	–	–
17	B	–	–	+	–	–	–	–	–	–	–	–	–
18	B	–	–	0	–	–	–	–	–	–	–	–	–
19	B	±	–	0	0	0	0	–	–	–	–	±	–
20	B	–	–	–	+	–	–	–	–	–	–	–	–

Frequency of Ratings

+ Positive indication of pathology	4	0	8	4	2	0	0	0	0	0	3	4
± Equivocal indication of pathology	6	2	3	2	1	1	0	0	5	0	3	0
– No evidence of pathology	9	17	6	12	11	17	19	20	15	20	13	15
0 Insufficient data	1	1	3	2	6	2	1	0	0	0	1	1
Significance level	.01		NS[2]		NS		NS		NS		NS	

[1] Robert Sedgewick, M.D., and Kenneth Zike, M.D., of the Los Angeles County Neurologically Handicapped Study were the physicians of Group I. Herbert Grossman, M.D., and Richard Walter, M.D., of the University of California, Los Angeles, Medical Center were the physicians of Group II.

[2] Not significant.

limits. From the records of known brain-injured children, some of their characteristic types of developmental patterns have been noted in medical research. These findings, which have been generalized to include a larger child population, are applied in cases where the physician is interested in establishing the normality or abnormality of the child's early life experience. Obviously, serious illness, prolonged febrile conditions with or without convulsions, head injuries, and the like are items of interest in establishing the possibility of some historical condition which might be related to the present difficulty. The problem for the physician, once he has determined the presence of any of these signs, is to relate the finding to the child's problem. While the particular pattern may be important in itself, it is not a simple matter to be sure that the finding can be identified with a detrimental effect on the child. Many researchers in medicine and psychology have established the fact that extreme care must be used in correlating an early historical finding with a present behavioral or learning difficulty.

The ratings assigned by the two groups of physicians working on the project indicate the degree to which they believed that a given finding was related to a present difficulty. Contradictory ratings were assigned by the two groups of doctors to 12 of the pupils. Group I, the Los Angeles County physicians, rated as "plus" those pupils whose histories evidenced any of the following: neonatal cyanosis, dyslexia, hyperactivity, short attention span, learning difficulties, delayed development, enuresis, speech problems, poor coordination, and head injuries.

Pupils rated as "plus" by the physicians from the University of California, Los Angeles, Medical Center were found to have injury with loss of consciousness, learning difficulties, speech disorders, and delayed development. While the criteria for a positive diagnosis in this category do not vary greatly between the two groups of doctors, there is evidently a noted difference in the relative weight given to certain factors in the history of the pupils. The criteria used by both groups of physicians were developed primarily from post-dictive studies of children with known neurological impairments (see "Comparison of Pertinent Criteria for Medical Evaluation," page 14).

Summary of the Ratings of Family History

The family history of convulsive seizures, neurological or psychiatric diseases, or mental retardation is of interest to the physician in establishing evidence for genetic conditions which might be related to the child's difficulty. As the pediatrician or neurologist obtains the history from the parent, he may find it useful in assessing the psychological and social environment in which the child lives. Often these areas of investigation offer help in interpreting historical data and may cause the physician to minimize a particular finding in the presence of convincing evidence of the inadequate social or psychological relationships of the child.

COMPARISON OF PERTINENT CRITERIA FOR MEDICAL EVALUATION[1]

Criteria of group I physicians	Criteria of group II physicians
Personal History	
Prenatal: In mother, hypertension, bleeding, fevers, toxins, blood incompatibilities, and the like. Edema in third trimester Perinatal: Prematurity. Difficult or prolonged labor; very rapid delivery. Cyanosis. Poor weight gain. Dehydration Postnatal: Unusual sleep-wake pattern Maturational anomalies, e. g., cleft palate and lip, delays of coordination, speech. Pathological reflexes. Febrile seizures. Continuing enuresis. Head trauma with unconsciousness. Attentional difficulties. History of dyslexia, dysgraphia, dyscalcue	Mother's pregnancy - evidence of complications, illnesses, uterine bleeding Labor - duration prolonged, other difficulties and complications Difficulties in delivery Birth weight - prematurity Neonatal period - resuscitative difficulties, feeding difficulties, excessive irritability Early history - development impaired in neuromuscular, social, emotional, and/or intellectual performance Severe illnesses and injuries - especially those with disturbed sensorium, e. g., unconsciousness and/or convulsions Convulsions Behavior disturbances Poor school performance
Family History	
Presence of developmental anomalies; learning failures, e. g., reading, writing, and arithmetic in parents, grandparents, siblings	Presence of mental illness, organic impairment, or convulsions in family members
Pediatric Examination	
Mixed dominance. Muscular signs of spasticity, e. g., tight heel cords, or weakness. Poor coordination, e. g., one-foot stands, awkwardness Nystagmus, "squint," imbalance of extraocular muscles; tremor; speech defects	Impaired physical condition Congenital abnormalities, estimate of intellectual capacity, coordination, speech maturity, and affect

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[1] These criteria are typical of those used. They are not to be considered an entire listing of all possible deviations.

Neurological Examination	
Spasticity Tremors Poor one-leg stand Deficiency in recognition of simultaneous stimulation, face-hand	Gross physical or neurological abnormalities will be recognized. The difficulty occurs when, as in hemiparesis, we do not have any specific correlation with behavioral phenomenon. Some of the less apparent "positive findings" follow: Visual disturbances- visual acuity, disturbance of extraocular movements Generally brisk deep tendon reflexes Presence of extensor toe signs (Babinski reflex) Gross motor awkwardness, e. g., poor hopping, imbalance Minimal choreo-athetoid movements Crossed laterality Disturbance of two-point discrimination and double tactile stimulation Fingeragnosia Perceptual difficulties - copies geometric designs poorly, poor hand-eye coordination

There were eight pupils with contradictory ratings on family history data. Those pupils given a "plus" rating by the doctors from the Los Angeles County study were found to have siblings or relatives with learning disabilities, members of the family with speech problems, and other difficulties in development in the history of family members. The family history of the only pupil who was given a rating of "equivocal findings" by the physicians in Group II showed a father with a diagnosis of schizophrenia and commitment.

Results of the Pediatric Examination

Brain-damaged children usually manifest some obvious physical impairment which can be noted during the pediatric examination. In the absence of a notable physical defect, general physical conditions are studied. Charles Bradley has commented on some of the particular conditions which have been found in cases of brain-damaged children.[14] The physician can note distractibility, poor physical condition, impulsiveness, awkwardness, poor coordination, and other deviations from what is considered normal for the child's age. Handedness has been the object of study by psychologists and neurologists for some time. Recently, Arthur L. Benton reviewed the literature on right-left discrimination.[15] His work indicates that we still do not know a great deal about the relationship of neurological findings to certain areas of the brain and that continued research on some of the problems presented by mixed laterality is needed to confirm earlier research results. The diagnostic problem in this area of medical investigation is again one of determining whether a particular finding is within normal variation for age. If the finding is borderline, the physician must predict whether it is positively related to neurological impairment. The five pupils with "equivocal" ratings on the pediatric examination assigned by the Group I doctors were found to have mixed laterality, defects in rapid alternating movements, immature speech, and mental dullness. The doctors in Group II interpreted none of their findings from the pediatric examination as indicative of neurophysiological impairment.

Results of the Electroencephalographic Examination

P. C. Bucy's work will be helpful to those who wish more information about the diagnostic procedures used in relation to EEG.[16]

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[14] Charles Bradley, "Behavior Disturbances in Epileptic Children," Journal of American Medical Association, CXLVI (1954), 436-41.

[15] Arthur L. Benton, Right-Left Discrimination and Finger Localization: Development and Pathology. New York: Paul B. Hoeber, Inc., 1959.

[16] P. C. Bucy, "Electroencephalography's Proper Role," Journal of the American Medical Association, CLX (1956), 1, 232.

R. D. Walter and others reviewed a particular EEG pattern in their investigations of the relationship of 14- and 6-per-second spikes to psychiatric judgments of behavior.[17] His study was designed to correlate behavioral patterns with specific EEG findings. The aim of his work was to see whether there were symptoms, somatic or social and/or behavior patterns, which distinguished children with the 14- and 6-per-second patterns from patients with other EEG abnormalities or without EEG disturbances. Of the four groups studied, 22 patients had normal EEGs; 23 patients had abnormal EEGs; 16 patients had both 14- and 6-per-second, and other abnormalities; and 13 patients had only 14 and 6-per-second spiking. The patients were evaluated by a psychiatrist without prior knowledge of the patients' classifications. Neurological studies were also performed. The patients with only the 14- and 6-per-second spiking demonstrated less in the way of "emotional symptomatology" than either the normal EEG group or those with other EEG abnormalities. Patients with 14- and 6-per-second activity plus other types of abnormalities demonstrated more "aggressive behavior" than either the abnormal EEG group or the normal EEG group. There was no evidence from this study of any marked difference in emotional make-up between children with EEG findings of 14- and 6-per-second spiking and other children, regardless of their EEG findings. R. D. Walter's work on this particular pattern will be of use to those who are interested in further study of the problem.

The administration of the EEG for a diagnosis of cerebral dysrhythmia must be accomplished under such carefully controlled examination procedures, since the results are so disposed to artifact that without such controlled procedures the results of the examination should be held in question. Specific discrepancies in an EEG record from what is considered normal for age and grade have been fairly well established. The problem in interpreting the EEG comes when a specific deviation which does not fit into any previously defined category is noted. The physician must then determine whether such a finding is within the normal range of variation, a function of experimental conditions, or specifically related to other findings within the case history.

Even in classic cases of epilepsy, where irritability and hyperactivity are predictable, behavior characteristics are not consistent from one case to another. The criteria for evaluating electroencephalographic records are commonly agreed upon by electroencephalographers and should be reported as specific deviations in the EEG summary. Some of the deviations that are found in EEG records indicate too slow a frequency for the chronological age, 14- and 6-per-second spiking, or focal and/or paroxysmal findings. The problem in using the EEG for diagnosis lies in the extent to which a particular deviation is correlated with a specific behavioral problem in the eyes of the physician.

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[17] R. D. Walter and Others, "A Controlled Study of the Fourteen- and Six-Per-Second EEG Pattern," Archives of General Psychiatry (American Medical Association), II (1960), 559-66.

Final Medical Diagnosis Based on Review of All Data

The doctors in both groups judged the medical findings in the light of their criteria for evidence of neurological impairment and used a similar rating procedure to classify all pupils. The significance of the differences between the ratings of two groups of physicians was found to be at the 1 percent level and can be explained largely by differences in the weight attached to the separate items of data which make up the final diagnosis. To reiterate, the five types of information gathered on all cases were (1) past history and history of present problem; (2) family history; (3) pediatric examination; (4) neurological examination; and (5) electroencephalographic examination.

The following patterns were found in those pupils previously identified as emotionally handicapped who were assigned a positive diagnosis of neurological impairment by the Group I physicians:

1. Two "plus" and two "equivocal" ratings
2. Two "plus" and one "equivocal" rating
3. One "plus" and one "equivocal" rating
4. One "plus" rating

The following patterns were found in those pupils who were assigned an equivocal diagnosis by the Group I physicians:

1. Two "positive" ratings
2. One "positive" rating
3. Three "equivocal" ratings
4. Two "equivocal" ratings
5. Two pupils with one "equivocal" rating each

The physicians in Group II diagnosed only two of the 20 pupils as "equivocal findings," and they diagnosed none having a "positive indication of pathology." Those with an "equivocal" diagnosis had the following patterns:

1. Two positive ratings
2. One positive and one equivocal rating

The differences between the ratings of the two groups of physicians cannot be found in relation to the criteria which were used for the ratings. These criteria are listed for both groups of physicians on page 14 . The difference between the two groups is largely based on differences in the significance assigned to a particular finding for the overall diagnosis. In one case the doctors knew the pupils were identified as emotionally handicapped, so their focus was on social and emotional problems even though they were looking for neurological impairments. The Los Angeles County doctors were looking for neurological impairments even though they knew the pupils had been identified as emotionally handicapped, so their primary focus was on the possibility of neurological impairment.

These results need careful interpretation. One inference, and perhaps the most important one, is that a diagnosis of neurological impairment on which physicians can easily agree is hard to get. The neurological impairment may, in fact, exist, but it is difficult to get agreement on what weights to assign to the findings. Once having agreed on the weights for the criteria, it is still difficult to determine whether the criteria have been met in a particular case. Without the frame of reference of the referring problem, the physician will have considerable difficulty in arriving at a determination of the etiology of the problem which would be consistent with another doctor's findings.

The second inference has to do with the relationship between the referring problem and the medical diagnosis. The referring problem is an essential part of the data used for interpreting medical findings. If the pupil is referred by the school psychologist as a possible organic case, the physician naturally looks first for signs to support the referral. If the pupil is referred because of emotional difficulties, the physician looks for related medical findings but is comfortable in emphasizing social and emotional imbalance as the primary etiological base for the difficulty.

We are not yet at the point where we can arrive at a consistent medical diagnosis in cases of complicated behavior and learning problems without reference to complete case information; and even when such information is used as a frame of reference, the attainment of a reliable diagnosis is relatively difficult. The psychological report of strengths and weaknesses in intellectual functioning, erratic test performance, and perceptual difficulties, which will be reviewed next, is an essential and commonly used addition to the battery of data used to make a positive diagnosis of neurological impairment.

RESULTS FROM THE REVIEW OF PSYCHOLOGICAL TEST DATA

The psychological evaluations of organic impairment were based on investigations of intellectual functioning, perceptual motor skills, and general organizational and conceptualizing skills. Three of the most typical examinations administered to children by school psychologists were used in this study to evaluate specific aspects of cognitive and perceptual functioning. An estimate of the level of intellectual functioning was provided by patterns of the Wechsler Intelligence Scale for Children (WISC) and the IQ scores. Skills in conceptualization and reactions to the testing situation were also noted during the administration of the WISC. Perceptual-motor functioning was inferred from responses to copying tasks such as those presented in the Bender Visual Motor Gestalt Test. The Draw a Person (DAP) test, which has received less note in the diagnosis of neurological impairments than the WISC or the Bender tests, was found useful in comparing social and emotional development with the norms established by F. L. Goodenough[18] and Molly Harrower.[19]

The information rated by both groups of psychologists as indicative of organic impairment was of three types and was based on the WISC, Bender, and Draw a Person tests. Achievement test data and ratings by teachers were also made available. Both groups of psychologists established criteria for their ratings and applied these criteria to the case material, using the same code as the physicians: positive indication of neurological impairment (+); no evidence of neurological impairment (-); equivocal indication of neurological impairment (±); insufficient data (0). The ratings by both groups of psychologists for the 20 cases are presented in Table 2.

Summary of Ratings on the WISC

In a review of psychological tests used for the diagnosis of brain damage, Aubrey J. Yates stated, "It is doubtful whether any aspect of psychological testing has been more inadequately treated than the diagnostic assessment of brain damage."[20] A review of available research on the WISC in an unpublished study by K. Hopkins indicates that the results of this test are conflicting and inconclusive.[21] As another example of the confusion, one report states that the comprehension subtest on the WISC is one of the scales adversely affected by brain injury,[22] and another report states that it is one of the least affected.[23] Claims of the diagnostic significance of many of the WISC subtests

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[18] F. L. Goodenough, *Measurement of Intelligence by Drawings*. Yonkers, N.Y.: World Book Co., 1926.

[19] Molly Harrower, *Personality Change and Development as Measured by the Projective Techniques*. New York: Grune & Stratton, 1958.

[20] Aubrey J. Yates, "The Validity of Some Psychological Tests of Brain Damage," *Psychological Bulletin*, LI (July, 1954), 374.

[21] K. Hopkins, "The Efficiency of the Wechsler Intelligence Scale for Children in Predicting Organicity in Children with Normal IQ's and a Note on Methodology." Unpublished study, 1960.

[22] J. Aita, S. G. Armitage, R. M. Reitan, and A. Rabinowitz, "The Use of Certain Psychological Tests in the Evaluation of Brain Injury," *Journal of Genetic Psychology*, XXXVII (1947), 25-44.

[23] R. M. Allen, "The Test Performance of Brain Injury," *Journal of Clinical Psychology*, III (July, 1947), 225-30.

Table 2

Comparison of Diagnoses of Neurophysiological Pathology Inferred from Psychological Test Findings for 20 Children with Learning and Behavior Difficulties Identified as Emotionally Handicapped

Case number	Sex	Psychological diagnosis		WISC		Bender		Draw a Person	
		Group[1]		Group		Group		Group	
		I	II	I	II	I	II	I	II
1	G	±	±	±	−	±	±	+	±
2	B	−	−	−	−	±	−	−	−
3	B	+	−	±	−	+	−	±	−
4	B	±	−	±	−	±	−	−	−
5	G	−(M.R.)	−	+	+	+	−	+	−
6	B	−	−	−	−	−	−	−	−
7	B	+	−	+	−	+	−	−	−
8	B	±	−	+	−	−	−	−	±
9	B	+	±	−	−	+	±	−	−
10	B	−	−	−	−	−	−	−	−
11	B	±	−	±	±	±	−	±	−
12	B	+	−	+	−	+	−	+	−
13	B	±	−	+	−	−	−	±	−
14	B	±	−	+	−	−	−	−	−
15	G	+	−	±	±	+	−	±	−
16	B	+	±	−	−	+	±	−	±
17	B	+	−	−	−	+	−	+	−
18	B	+	±	+	+	+	±	−	−
19	B	+	−	+	−	+	−	−	−
20	B	−	−	−	−	0	−	−	−

Frequency of Ratings

+ Positive indication of pathology	9	0	8	2	10	0	4	0
± Equivocal finding	6	4	4	3	4	4	4	3
− No indication of pathology	5	16	8	15	5	16	12	17
0 Insufficient data	0	0	0	0	1	0	0	0
Significance level	.01		.05		.01		NS[2]	

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[1] Those of Group I who made the ratings were Berdine Jones and John W. Howe of the Los Angeles County Neurologically Handicapped Study. Irla Lee Zimmerman, a psychologist in private practice, was the person who made the ratings of Group II.

[2] Not significant.

have been made in the work of J. Aita,[24] R. M. Allen,[25] Seymour G. Klebanoff,[26] Joseph Levi,[27] and J. W. Parker.[28] Other research workers who could find no such positive results from WISC pattern analyses were Harry S. Beck,[29] Jacob Cohen,[30] G. H. Frank,[31] Joseph Jastak,[32] and C. H. Patterson.[33]

The confusion caused by such conflicting reports has been increased by the many suggestions for the use of the WISC which have been generalized from studies made with the Wechsler Adult Intelligence Scale. Studies of the WISC performance of a group of children with ability above the range of mental retardation are necessary before it will be possible to make safe judgment as to the importance of any particular subtest findings. Hopkins' careful analysis of the WISC patterns of a sample of 33 pupils identified for the Los Angeles County neurologically handicapped study indicated that there were no consistent patterns which could be identified. The two subtests with the lowest means for the group were Arithmetic and Coding. The lack of reliability of the differences between the WISC subtests was noted as being a significant limiting factor in making inferences of organic impairment. The difference between verbal and performance IQ has been noted in the literature as being a significant sign in interpretation. K. Hopkins found that only one-third of his population had higher verbal than performance IQs as predicted, contrary to the work of

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[24] Aita and Others, *loc. cit.*

[25] Allen, *loc. cit.*

[26] Seymour G. Klebanoff, Jerome L. Singer, and Harold Wilensky, "Psychological Consequences of Brain Lesions and Ablations," *Psychological Bulletin*, LI (January, 1954), 1-41.

[27] Joseph Levi, Sadi Oppenheim, and David Wechsler, " The Clinical Use of the Mental Deterioration Index of the Bellevue-Wechsler Scale," *Journal of Abnormal and Social Psychology*, XL (October, 1945), 405-07.

[28] J. W. Parker, "The Validity of Some Current Tests for Organicity," *Journal of Consulting Psychology*, XXI (October, 1957), 425-28.

[29] Harry S. Beck and Robert L. Lam, "The Use of the WISC in Predicting Organicity," *Journal of Clinical Psychology*, XI (April, 1955), 155-58.

[30] Jacob Cohen, "Factors Underlying Wechsler-Bellevue Performance of Three Neuropsychiatric Groups," *Journal of Abnormal and Social Psychology*, XLVII (April, 1952), 359-65.

[31] G. H. Frank, C. C. Carrie, and J. Fogel, "An Empirical Critique of Research with the Wechsler-Bellevue in Differential Psychodiagnosis," *Journal of Clinical Psychology*, XI (July, 1955), 291-93.

[32] Joseph Jastak, "Ranking Bellevue Subtest Scores for Diagnostic Purposes," *Journal of Consulting Psychology*, XVII (December, 1953), 403-10.

[33] C. H. Patterson, *The Wechsler-Bellevue Scales -- A Guide for Counselors*. Springfield, Ill.: Charles C. Thomas, Publisher, 1953.

R. M. Allen,[34] C. H. Patterson,[35] and David Wechsler.[36] More research is needed to establish base rates for particular psychological findings on the WISC before the school psychologist can place high hopes on the use of this instrument for the prediction of neurological impairment.

William Littell reviewed all of the research on the WISC in the ten years since its publication and concluded that there was an appalling lack of predictive validity studies.[37] This is an area for important contributions to the understanding of intellectual functioning for those school psychologists who wish to explore research possibilities of the WISC.

The differences between the distributions of rating on the WISC by the two groups of psychologists was largely a result of the different criteria used for assigning the ratings. These criteria can be found in the "Comparison of Criteria for Psychological Evaluations," page 24.

Summary of the Ratings on the Draw a Person (DAP) Test

Research on the use of the Draw a Person test in the prediction of organicity is scarce. Most of the research on the DAP by F. L. Goodenough,[38] Molly Harrower,[39] and Karen Machover[40] has indicated that this test is useful in making comparisons between the developmental age of the pupil, inferred from his drawing, and his intelligence, as measured by individual tests. Other research by these same workers has shown that the drawings can be used in evaluating progress in psychotherapy and as a possible means of measurement of personality change. Since the research support for such use is weak, much needs to be done in order to establish the validity of this instrument in a battery of tests used for the child with suspected organic impairment.

Although limited research has been completed on comparing types of drawings with suspected neurological impairment, the DAP is commonly used as

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[34] Allen, loc. cit.

[35] Patterson, loc. cit.

[36] David Wechsler, The Measurement and Appraisal of Adult Intelligence. Baltimore: Williams and Wilkins, 1958.

[37] William M. Littell, "The Wechsler Intelligence Scale for Children: Review of a Decade of Research," Psychological Bulletin, LVII (March, 1960), 132-56.

[38] Goodenough, loc. cit.

[39] Harrower, loc. cit.

[40] Karen Machover, "Drawing of the Human Figure: A Method of Personality Investigation," in H. H. Anderson and G. L. Anderson, An Introduction to Projective Techniques. New York: Prentice-Hall, Inc., 1951.

COMPARISON OF CRITERIA FOR PSYCHOLOGICAL EVALUATIONS

Criteria of group I psychologists	Criteria of group II psychologists
Wechsler Intelligence Scale for Children Test	
Discrepancy between verbal and performance score of 20 or more points Scatter or unevenness of subtest scores manifest as a range of six or more points between highest and lowest scaled scores Relatively lower performance for the individual on certain subtests, information, arithmetic, digits backward vs forward, object assembly, block design, and coding	Low IQ VIQ higher than PIQ Among the lowest subtests are object assembly, block design, and coding Lower digit span Higher subtest scores on arithmetic, information picture completion, and picture arrangement
Draw A Person Test	
Grossly poor or immature properties Insufficient detail or differentiation as expected from age, e.g., lack of neck and shoulders, tapering at thigh juncture, no hands or fingers, missing head detail In addition to above signs, presence of "flat" or decorticated heads (other than when represented as "flat-top" hair cuts)	Perceptual-motor difficulties Immature figure (deviating from mental age on WISC) Confused body image
Bender Test	
Marked size discrepancy between subcomponents of same figure Obvious distortions amounting to loss or near loss of gestalt Presence of recognized signs of immaturity or pathology of perception, i.e., inability to draw oblique angles, loss of side or angle in hexagons Reversals Rotations Primitivation or oversimplification if of a marked degree	Perceptual-motor difficulties not related to mental age Organization - placement inadequate planning, confused sequence, variations in size, rotation Reproduction - simplification, modification, distortion, inaccuracy (number of units, angulation, curvature)

part of a test battery. Unpublished work by Irla Lee Zimmerman indicates that in the records of 25 children diagnosed as neurologically impaired at the University of California Medical Center, perceptual-motor difficulties could be found in some drawings, immature figures were typical in others, and a diffuse body image typical of still others. Although care must be taken in making predictions from figure drawings, the popularity of DAP as part of a test battery will probably continue.

Summary of Ratings on the Bender Visual Motor Gestalt Test

Following Lauretta Bender's pioneer work in the development of the Bender Visual Motor Gestalt Test, a number of research workers have used the instrument in studies of differential diagnosis of brain injury, severe emotional disturbance, and intellectual performance.[41] Anne Clawson found that arrangement, sequence, difficulties with closure, change in angulation and rotations, taken as independent signs, can discriminate between clinic cases and a sample of school children without apparent difficulty.[42] Rotations, either in the reproduction of design, in rotations of the paper, or in turning the cards, have been studied by S. B. Chorost,[43] Lewis R. Goldberg,[44] Richard Griffith,[45] L. J. Havnik,[46] Elizabeth Koppitz,[47] and Anne Clawson.[48] The results are equivocal in supporting the value of rotations in predicting brain damage. Most of these researchers suggest that the Bender test has some value as a screening device but that it should be used only with other data in making personality predictions. In spite of the lack of firm findings on its use as a test for organicity, the Bender is found to be used more often by research workers in batteries of tests with organics than other tests that are commonly used in psychological appraisal.

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[41] Lauretta Bender, A Visual Motor Gestalt Test and Its Clinical Use. New York: American Orthopsychiatric Association, Monograph No. 3, 1938.

[42] Anne Clawson, "The Bender Visual Motor Gestalt Test as an Index of Emotional Disturbance in Children," Journal of Projective Techniques, XXIII (June, 1959), 198-206.

[43] S. B. Chorost, G. Spivak, and M. Levine, "Bender-Gestalt Rotations and EEG Abnormalities in Children," Journal of Consulting Psychology, XXIII (1959), 559.

[44] Lewis R. Goldberg, "The Effectiveness of Clinicians' Judgments: The Diagnosis of Organic Brain Damage from the Bender-Gestalt Test," Journal of Consulting Psychology, XXIII (February, 1959), 25-33.

[45] Richard M. Griffith and Vivian H. Taylor, "Incidence of Bender-Gestalt Figure Rotations," Journal of Consulting Psychology, XXIV (April, 1960), 189-90.

[46] L. J. Havnik, "A Note on the Limitations of the Use of the Bender-Gestalt Test as a Diagnostic Aid in Patients with a Functional Complaint," Journal of Clinical Psychology, VII (April, 1951), 194; and "A Note on Rotations in the Bender-Gestalt Test as Predictors of EEG Abnormalities in Children," Journal of Clinical Psychology, IX (October, 1953), 399.

[47] See the four references cited for Elizabeth M. Koppitz in the selected references.

[48] Clawson, loc. cit.

Additional work is needed with the Bender, especially with random samples of school populations at various ages compared with the variables of intelligence, socioeconomic status, achievement, and age. Some workers have suggested that the Bender is overly sensitive, since it is typical for children to make a number of gestalt errors. Others, like Elnora Schmadel,[49] in an effort to see how the Bender reproductions might differ in a group of gifted, randomly selected, and neurologically handicapped pupils (from the Los Angeles County project) found that few differences existed between these groups, but that certain gestalt deviations were found to a greater degree in the neurologically handicapped. All of the deviations were found in all three groups.

The weakness of most of this research results from the frequent use of the Bender or other perceptual motor tasks as the basis for selecting the population to be studied. Predictions of more deviations would be inevitable under such circumstances. Establishment of base rates for a variety of child populations and follow-up work with pupils who show different gestalt deviations and organizational patterns are needed before the predictive validity of this test can be established.

The criteria for assigning ratings indicative of neurological impairment to the Bender protocols were not markedly different for the two groups of psychologists. The differences between the frequencies of the ratings noted in Table 2 are based on interpretation of the criteria and on differences in the criteria that were used for predicting organicity.

SUMMARY OF COMPARATIVE JUDGMENTS MADE BY PHYSICIANS AND PSYCHOLOGISTS

Only the distribution of ratings assigned to the overall medical diagnosis of neurological impairment was found to discriminate significantly between the Group I and Group II physicians. Even though there were no serious disagreements between the findings of the two groups of doctors working with the same units of case data, a summary diagnosis of the etiology of a child's difficulty was not consistent from one group of physicians to another. The weight assigned to particular medical findings, while not showing up in significant differences in the distribution of ratings of specific case data, must have had a cumulative effect in arriving at the total medical diagnosis. The general assumption from these data is that a medical diagnosis of neurological impairment in these 20 cases of pupils identified as emotionally handicapped is a highly presumptive, inferential, and unreliable procedure.

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[49] Elnora Schmadel, "Comparisons of Visual Motor Dysfunction of Hyperactive and Brain-Injured, Mentally Gifted, and Average Children." Unpublished Study, 1962.

Three of the four distributions of ratings assigned by the two groups of psychologists were found to be significantly different. The one which did not meet the criterion of a 5 percent level of significance was the distribution of ratings on the DAP. The criteria for presumptive ratings of organicity from Bender protocols were more refined than the criteria for ratings on the WISC and the DAP. More research studies have been conducted illustrating the importance of gestalt distortions and perceptual-motor difficulties. The results of these studies lend support to the use of particular Bender criteria for prediction of organic impairment of some type. Since the criteria for the WISC and the DAP are much less well defined, the psychologist must rely on previous experience and clinical judgments in using them. The ratings of the WISC and DAP would be considered, therefore, to be more subjective than those on the Bender. Such subjective ratings made by psychologists are analogous to the subjective ratings made by physicians on the family history, personal history, and pediatric examination. The objective medical procedures of the neurological and electroencephalographic examinations are not subject to as great a need for clinical interpretation.

An overall comparison of the medical and psychological ratings assigned by the two groups of research workers indicates that significant differences in distributions of the ratings were found only in relation to the Bender test and the WISC, not in any of the medical ratings. On the other hand, distributions of the ratings of the medical and psychological diagnoses were both found to be significantly different at the 1 percent level. The following inferences may be drawn from these comparisons: (1) a reliable diagnosis of neurological impairment is difficult to achieve either by physicians judging medical data or by psychologists judging psychological case records; and (2) the more subjective the criteria for evidence of organicity are, the greater the differences will be between two groups judging the same case material.

ESTIMATED FREQUENCY OF NEUROLOGICALLY HANDICAPPED IN A SAMPLE OF EMOTIONALLY HANDICAPPED PUPILS

The percent of the 20 pupils identified as emotionally handicapped who were judged to be neurologically handicapped by the Los Angeles County medical and psychological project staff determined the overlap between these two populations (EH and NH). The medical and psychological ratings assigned demonstrated clearly that agreement between two groups of specialists working toward the same end was difficult if not impossible to find. At this point we have no definitive data to support the assumption that a given percent of emotionally handicapped pupils will have a positive diagnosis of neurological impairment. Nevertheless, educational programs for the neurologically handicapped in the schools often include, where there is long-standing diagnostic support for this classification, clear-cut cases of brain injury and neurological impairment. There were no such cases within this sample of 20 pupils who were identified as emotionally handicapped. About 1 percent of the population is the estimated rate for such severe neurological impairments so that finding no cases of this type within a sample of 20 might be due solely to sampling errors.

Most of the recent concern over the neurologically handicapped pupils has concerned those who had perpetual impairments, severely retarded school learning, and hyperactive, erratic behavior with no evidence of brain injury or certain diagnosis. Even though the diagnosis of neurological impairment was difficult to arrive at in such cases, one or two positive signs in the medical record of a pupil was usually found to be sufficient evidence to chance the prediction of some organic involvement. This is supported by reference to the number of clinical signs used to arrive at a positive diagnosis by the Los Angeles County project physicians. The problem in etiological classification of neurological impairment was that many pupils with similar behavior, similar perceptual distortions, and retarded learning and related difficulties could not be found to have even this small amount of medical support for a diagnosis of neurological deficits. In these cases, psychological case data were resorted to, and the diagnosis was supported on the basis of psychological findings. The results of the agreements reported herein between two groups of experienced psychologists did not demonstrate agreement in the psychological findings over what constituted positive evidence of organic impairment. Because of these problems, the diagnosis of organic difficulty and neurological handicap was usually made on the basis of collaboration between psychologist, physician, and educator. Consistency can be found in collaborative data, perhaps, but certainly there is little consistency between two groups of workers evaluating independently the individual pieces of information which go to make up the case study.

The overlap between these cases can be determined by noting the pupils in the emotionally handicapped classification who would have qualified for the neurologically handicapped program being conducted at that time.

In addition to judging individual items of case data in diagnoses of neurological impairment, the Los Angeles County group was asked to determine, from all the available data, those of the 20 identified as emotionally handicapped who would qualify for the program for the neurologically handicapped which was then under way in the county. It was of interest to know which of these randomly picked emotionally handicapped pupils would have been found eligible for the neurologically handicapped program if they had been in the school population from which those special class pupils had been selected. An overall summary rating of all of the data was then made of the eligibility of these pupils for the neurologically handicapped program. The proportion of pupils of the 20 identified as emotionally handicapped found to be eligible for the neurologically handicapped program was another indication of the overlap between these populations.

Since four of the 20 emotionally handicapped pupils were older than pupils in the neurologically handicapped population, no comparative judgment was made of them. Of the remaining 16 pupils, ten (or 62 percent) were judged to be eligible for the neurologically handicapped program on the basis of educational, psychological, or medical data or a combination of any of them. The diagnostic patterns assigned by the Los Angeles County staff to these ten pupils follow:

Number of pupils with each diagnostic pattern	Diagnostic pattern
9	Positive and/or equivocal educational, psychological, and medical ratings
0	Positive and/or equivocal educational and psychological ratings
1	Positive educational and medical ratings

Chapter 3

COMPARISON OF DIAGNOSES OF RANDOM SAMPLES OF EMOTIONALLY HANDICAPPED AND NEUROLOGICALLY HANDICAPPED PUPILS

In order to compare the frequency of positive, equivocal, and negative diagnostic signs found in the EH sample (children identified as emotionally handicapped) with some other identified group, the staff of the Los Angeles County Neurologically Handicapped Project was asked to select a random sample of 20 pupils from its records. Doctors Zike and Sedgewick then were asked to review the county's medical reports for these pupils and assign ratings according to the categories used in judging the evidence of neurological impairment in the EH sample. The psychologists in the county project, Dr. Jones and Mr. Howe, made judgments of the educational and psychological data for the same random sample of the 20 NH pupils (children identified as neurologically handicapped).

A summary of the distribution of the ratings by the Los Angeles County research staff for both the EH and NH sample appears in Table 3; the significance level was obtained by chi square for each set of distributions. For each computation of chi square, the distributions were reduced to a 2 × 2 table in order to avoid small frequencies. The ratings of zero were omitted from the table, and computations were based on the total frequencies thus reduced by the omission of zero ratings.

The distributions for the comparative ratings made by the Los Angeles County staff between the sample of EH and NH pupils are presented in Table 3. Here one finds again that the differences between the two groups are mainly in those areas of diagnosis subject to qualitative and nonobjective information, with one exception: that of the ratings assigned to the electroencephalogram (EEG). The significant difference in the distribution of ratings for the EEG may be due either to differences in interpretation of the records or to real differences between the two populations. Without further study of these two groups, it is not possible to assign proper interpretation to this finding.

One would expect, however, that a significantly greater proportion of pupils designated as NH would be found to qualify for the special educational programs in the Los Angeles County project and to receive a positive overall diagnosis. Such was the case in the medical diagnoses as well as in the judgment of eligibility for the program. Of 13 comparisons made in the ratings of these two groups of pupils, six were found to be significantly different; school behavior was judged to be more severely deviant, the pediatric examination noted more questionable types of behavior, the EEGs were judged to contain more evidence of abnormality, and the Draw a Person was also questioned more times in the NH sample. The overall medical diagnosis and the eligibility for the NH program were the other two significant differences.

Table 3

Comparison of Ratings of Possible Neurological Impairment for a Sample of Emotionally Handicapped Pupils and a Sample of Pupils Judged to be Neurologically Handicapped

Significance level	Pupils						Type of data
	Type	Number receiving rating				Total	
		+[1]	±[2]	–[3]	0[4]		
		Frequency of Medical Ratings					
.05	EH[5]	4	6	9	1	20	Medical diagnosis
	NH[6]	14	6	0	0	20	
NS[7]	EH	8	3	6	3	20	Personal history
	NH	11	8		1	20	
NS	EH	2	1	11	6	20	History of family
	NH	2	6	10	2	20	
.05	EH	0	0	19	1	20	Pediatric examination
	NH	4	8	8	0	20	
NS	EH	0	5	15	0	20	Neurological examination
	NH	3	5	11	1	20	
.05	EH	3	3	13	1	20	EEG
	NH	8	1	5	6	20	
		Frequency of Psychological Ratings					
NS	EH	7	4	9	0	20	WISC
	NH	7	11	2	0	20	
NS	EH	10	4	5	1	20	Bender
	NH	12	2	1	4	20	
.05	EH	5	3	11	1	20	DAP
	NH	7	4	4	5	20	
NS	EH	10	5	5	0	20	Psychological diagnosis
	NH	10	10	0	0	20	
		Frequency of Educational Ratings					
NS	EH	7	2	8	3	20	Achievement
	NH	11	7	1	1	20	
.05	EH	6	2	9	3	20	School behavior
	NH	14	1	4	1	20	
		Frequency of Overall Diagnoses and/or Eligibility for Special Los Angeles County Program					
.001	EH	10	0	8	2	20	
	NH	20	0	0	0	20	

[1] + support for positive diagnosis

[2] ± equivocal support for positive diagnosis

[3] – no support for positive diagnosis

[4] 0 insufficient data

[5] EH – Emotionally handicapped. Cases included here are a random sampling of children identified as EH.

[6] NH – Neurologically handicapped. Cases included here are a random sampling of 20 taken from those in the Los Angeles County NH Project.

[7] NS – No significance.

To summarize these findings, it is possible to say that there is a significant comparability between those pupils selected from a school population as neurologically handicapped and a sample of those selected because of noted emotional handicaps. In more than half of the comparisons made between these two groups of pupils, there were no differences. At this point one should ask which educational programs seem most useful in improving the school standing of pupils with such serious learning and behavior disorders.

Chapter 4

EDUCATIONAL PROGRAMS FOR PUPILS WITH SERIOUS LEARNING AND BEHAVIOR DIFFICULTIES AND THE EFFECTS OF THESE PROGRAMS

In all cases in the programs to be described here, parents of the pupils who were assigned were apprised of the pupil's school difficulty, the general findings from the case work, and the prospects of the specific program which was selected to assist the pupil in his school development. The general goals for the programs are to assist pupils in achievement, to help them develop more effective peer and adult relationships, and for the pupil to experience generally as successful a school career as possible. The pupils are placed only with parental permission, and frequent parent-teacher-psychologist conferences are held.

TYPES OF EDUCATIONAL PROGRAMS CONDUCTED FOR THE SAMPLE OF EMOTIONALLY HANDICAPPED PUPILS

The Special Class

The special class is composed of a group of eight to twelve emotionally handicapped children who are within transportable distance of the school where the class is established. The class is situated in an elementary school in a nonisolated but appropriate locality on the school grounds. The teacher is a regular elementary teacher, and he is served by a mental health specialist (psychiatrist, psychologist, or social worker with whom he consults regularly) and members of the school, guidance and curriculum staff.

The educational program is aimed at individualizing instruction and providing appropriate limits for each child. Some may need and get a rather tough regimen of work and discipline; with others, the teachers may move slowly within a more relaxed relationship. In any case, the content of the program is that of a basic educational program appropriate to the grade level of the child. Behavior standards are maintained by the teacher, and referrals to principal or parents are utilized when necessary. The teacher, in many instances, works with individual children or small groups of children since this relationship is found to be most productive for the child's learning. The great range of interests, abilities, and emotional needs may make the class a relatively heterogeneous group, but the range of such heterogeneity may vary markedly from one group to another.

Improvement and growth are continually assessed by the teacher and psychologist. Children who show sufficient growth intellectually and behaviorally are returned to an appropriate regular class.

Learning Disability Group

In this program educational help is provided by a specialist in remedial work. Children leave their regular classes for one or two hours per day for the service. The maximum size of the group served by the specialist is eight, but instruction may be given individually, in groups of two or three, or as a group of eight. Children placed in the program are those who qualify on the basis of the general identification procedures for locating emotionally handicapped pupils,[1] have measured intelligence above or within normal range, and are retarded two or more years in school learning on the basis of normal expectancy.

The instructional program for those who need remedial work begins with an analysis of each child's difficulty by the school psychologist and the teacher. Instructional methods used include phonics, structural clues, word meaning clues, kinesthetic techniques, visual techniques, and other appropriate avenues for increasing skill. Audio-visual materials such as filmstrips, tachistoscopes, and tape recorders are also used extensively. Flash cards, charts, and maps are employed to develop speed and confidence. Exercises in word building are used as much as possible. During the classwork, the teacher strives to restore the child's confidence by planning as many successful learning experiences as are realistically possible.

The Activity Group

This program is usually structured as a club and an after-school activity. In most cases, six to eight children meet about twice a week for a two-hour session. The children in the group are emotionally handicapped children who manifest a variety of problems -- some are extremely hyperactive, others are timid and withdrawn children. A variety of expendable craft, painting, clay, woodwork, and other expressive media are made available to the children. A teacher assumes the role of group leader. His role is to help the child to use the play materials and to provide a nonthreatening, nonpushing atmosphere for children to express and explore emotional conflicts which frighten or embitter them. During the play sessions he is an active "neutral," providing help when asked but avoiding any interference in or criticism about a child's work.

The purpose of the activity group is to provide a safe place for children to "let off steam" and to develop relationships with other children of their age. It is successful primarily to the degree that a child improves his relationships with teachers and children in the school.

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[1] Nadine Lambert, Technical Report on the Process for In-School Screening of Children with Emotional Handicaps. Princeton, N. J.: Educational Testing Service, 1961.

Group Counseling

In this program the group leader is a competent group worker with experience in working with adolescents. The group of about ten selected emotionally handicapped pupils in the junior or senior high school meet with the group leader for one period during the day, two or three times a week. Often the pupils in these groups are one short step from suspension or expulsion from school. However, even in this program students placed there must be able to profit and to have a capacity for insight and an initial desire to attend and participate.

The purpose of the group counseling program is to assist adolescents to clarify and to reduce emotional conflicts by permitting an encouraging discussion about problems in peer and authority relationships in school. The group leader can help the student in his group put together several obvious facts about his behavior which may enable him to understand why certain patterns of interpersonal difficulty always arise in his relationships. In other instances, the supportive relationship provided by the group leader may provide a safe base for the student to test, for the first time in many cases, a mature relationship with an adult.

The success of all of these programs is based on the extent of the pupil's improvement in school achievement, the degree of improved relationships with peers and adults, and his ability to maintain these changes after termination of special help.

EFFECTIVENESS OF EDUCATIONAL PROGRAMS FOR EMOTIONALLY HANDICAPPED PUPILS

The 20 pupils in this sample were assigned to the four programs just described. These programs were some of over ten different approaches evaluated in the research project of which this study is a part. (For each pupil the program in which he was enrolled is indicated after his case number on Table 5.)

Of interest at this point is the degree to which pupils selected as being typical of those enrolled in the neurologically handicapped study conducted by the office of the Los Angeles County Superintendent of Schools are able to make progress in classes in which there are a variety of emotionally handicapped pupils. The statement has been made frequently that the disabilities of the neurologically handicapped pupil are so unique that he must be placed in a classroom with others with similar medical etiology. To the extent that the ten pupils in the sample of 20 emotionally handicapped students who were judged to be eligible for the neurologically handicapped program are like pupils actually enrolled in those classes, some comparisons can be made of their ability to make achievement gains in a heterogeneous class of pupils with learning and behavior problems.

Tables 4 and 5 contain the educational information which was available on the sample of 20 emotionally handicapped pupils. In addition, these tables cite the type of program in which each was enrolled as well as a summary of the ratings assigned by the staff of the project in Los Angeles County. Achievement test data were not available for some pupils because they moved from the district before a second test could be given or because they were too young to be given achievement tests in the regular school program. For those pupils who did have test scores after one and two years in the program, their gains in achievement grade placement for both reading and arithmetic are listed in Table 5. With such a small sample, the mean gain in achievement is not such a useful score, but it does provide, along with the range in achievement gain, some idea of the success of the special programs in meeting these pupils' learning needs. The average gains in achievement and range in gain after one and two years are as follows:

Change in Reading Achievement Grade Placement

	Average gain	Range in gain
After 1 year	1. 5 years	0 to 3. 5 years
After 2 years	2. 2 years	0. 5 to 4. 5 years

Change in Arithmetic Achievement Grade Placement

	Average gain	Range in gain
After 1 year	1. 4 years	0. 5 to 2. 0 years
After 2 years	2. 1 years	0. 5 to 4. 5 years

RECOMMENDED EDUCATIONAL PROGRAM FOR EMOTIONALLY HANDICAPPED PUPILS WITH OR WITHOUT EVIDENCE OF NEUROLOGICAL IMPAIRMENT

To summarize these data, one can conclude that the children in this group of 20 emotionally handicapped pupils are vulnerable to school difficulties for a variety of reasons, among which may be neurological impairments of some type. Though there are evidently no correlations of these impairments with specific medical findings and specific behavior deviations, one still needs as much information about the pupil's developmental history, his learning strengths

Table 4

Educational Information on a Sample of 20 Emotionally Handicapped Pupils with Ratings of Possible Neurological Handicap Made by the Staff of the Los Angeles County NH Project

Educational information	Case number and ratings																			
Teacher rating of pupil[1]	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Gets into fights or quarrels with other pupils	2	1	4	4	4	Dropped out of school	5	4	4	5	5	1	2	4	1	4	5	2	4	4
Has to be coaxed or forced to work or play with others	4	1	2	1	4		4	4	3	4	5	2	2	5	4	5	5	4	2	3
Has difficulty learning	4	5	5	2	2		5	5	4	4	4	5	5	4	5	5	5	5	2	2
Is interested in activities which he can do himself	1	2	2	1	2		1	5	2	1	2	2	2	5	4	1	1	4	5	1
Makes inappropriate responses in the classroom	2	2	5	5	3		4	2	4	2	2	5	4	4	1	5	5	2	1	4
Behaves in ways which are dangerous to self or others	2	1	4	2	2		4	1	2	4	2	2	2	4	1	3	5	2	1	4
Is often unhappy or depressed	4	4	4	4	3		5	1	1	3	4	2	4	4	2	5	5	4	2	3
Becomes sick or upset when faced with a difficult school problem or situation	2	1	1	1	2		4	1	3	1	1	3	4	2	2	3	4	5	1	3
Achievement[2]																				
Reading	3	5	4	5	3		5	4	3	5	3	5	5	5	4	5	5	4	3	4
Arithmetic	3	5	3	5			3	4		5	3	4	3	3	4	3	4	4	2	5
Ability (IQ)[2]	3	3	3	3	5		3	3	3	3	3	5	3	1	3	3	3	3	3	2
Summary of Los Angeles County ratings of NH[3]																				
Interpretation of educational data as indicative of neurological impairment by Los Angeles County staff	–	+	+	±	0	–	+	+	±	+	0	+	+	–	+	+	+	–	0	–
Interpretation of psychological data, and similar information	±	–	+	±	– MR	–	+	±	+	–	±	+	±	±	+	+	+	+	+	–
Medical diagnosis of suspected neurological impairment	–	+	±	0	±	–	+	±	±	±	–	+	–	+	–	–	–	–	±	–
Eligibility for special program for NH as judged by Los Angeles County medical and psychological staff	–	+	+	0	✓	•	+	+	+	•	–	+	+	•	+	+	+	–	0	•

[1] Legend: 1—never; 2—once in a while; 3—not observed; 4—quite often; 5—all of the time.

[2] Legend: 1—well above average; 2—above average; 3—average; 4—below average; 5—well below average.

[3] Legend: + support for positive diagnosis; ± equivocal support for positive diagnosis; – no support for positive diagnosis; 0 insufficient data; • over 12—maximum age for pupils in the Los Angeles County NH Project; ✓ extremely low IQ, possibly mentally retarded.

Table 5

Eligibility of Emotionally Handicapped Pupils for the Los Angeles County NH Program, the Type of Educational Program Provided, and Comparison of Their Achievement Gains After One and Two Years

Case number	Type of program[1]	Eligibility for NH program[2]	Achievement gain			
			Arithmetic		Reading	
			After one year	After two years	After one year	After two years
1	A	—	—	—	—	—
2	B	+	1.9	4.4	1.4	2.8
3	B	+	1.2	2.2	0.7	2.0
4	C	O	—	—	—	2.6
5	D	✓	—	—	—	—
6	A	•	—	—	—	—
7	B	+	—	.6	1.3	.6
8	B	+	1.5	4.0	3.5	3.8
9	D	+	—	—	—	—
10	A	•	—	—	—	—
11	B	—	—	—	—	—
12	C	+	—	1.7	—	2.4
13	B	+	—	1.0	1.5	1.7
14	A	•	—	—	—	—
15	C	+	1.5	2.3	1.0	1.1
16	B	+	1.0	3.8	2.5	4.5
17	B	+	—	.9	0.0	.5
18	B	—	—	—	—	—
19	B	O	—	—	—	—
20	A	•	—	—	—	—
		Average gain	1.4	2.3	1.5	2.2

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[1] Type of program: A—group counseling; B—special class; C—learning disability group; D—activity club

[2] Legend: + eligible for Los Angeles County NH program; — not eligible for NH program; • too old for NH program; ✓ possibly mentally retarded, would have qualified for other special help; O insufficient data.

and weaknesses, and social relationships as is possible to obtain. When these findings are combined for a particular pupil, they form the basis for the educational plan which is drawn up to assist the pupil in his school learning tasks. Just as there are those pupils whose learning disorders stem from some organic impairment, there are those whose learning disabilities stem from adverse environmental circumstances. As one can see by reviewing the case material (in the Appendix) for each of the 20 pupils, different combinations of circumstances may cause somewhat similar learning difficulties.

Two children may be extremely hyperactive in school for different reasons. After each child has been checked medically and recommended treatment has been instituted, the child's educational program and needs may be quite similar to those of another child. The material from this study indicates that two hyperactive children may have their learning needs and behavior problems met quite adequately in a program that provides the structure and the consistency which they need. At this point one cannot generalize that a specialized curriculum is needed for the pupil whose hyperactivity is the result of brain injury, which is different from the curriculum for the pupil whose hyperactivity is the result of home conditions. The educational adjustments the school needs to make in cases of pupils with severe learning and behavior problems should be based on each pupil's educational needs rather than on a medical diagnosis.

The children in this study were assigned to the programs which provided them with the greatest opportunity for the help they needed. If their problems were primarily in the social relationship area, group counseling or activity clubs appeared to provide the most direct assistance. For those whose learning disabilities were so great that they could not continue without special remedial help, either the learning disability group or the special class was applicable. The choice between these two programs was made on the basis of the severity of the problem as well as the extent to which the pupil needed assistance from a special teacher for the whole day or could get along with special assistance for only part of a school day.

Children with learning and behavior problems can be helped to gain in achievement and in better school relationships. If they are not provided help when their school failure is first noticed, they enter high school with only about a 30 percent chance of graduating. In addition, those emotionally handicapped pupils who are enrolled in high school at the tenth grade are those who have significantly lower grades than their peers, are absent more frequently, have more penal and vehicle code violations, and have more referrals to school pupil personnel workers for special help. Their problems do not disappear without notice; their school problems increase as the help they need is delayed from school year to school year

Chapter 5

SUMMARY OF THE FINDINGS OF THE PROJECT

During 1959, 20 pupils, a representative sample of those identified as emotionally handicapped in regular and special classes of public schools, were selected for pediatric and neurological examination at the Medical Center of the University of California, Los Angeles. Two physicians, Herbert Grossman, M.D., and Richard Walter, M.D. administered the examinations--one conducting the pediatric and neurological investigations and the other conducting the electroencephalographic investigation.

The purpose of this medical investigation was to determine the incidence of neurological impairments in a sample of pupils identified as emotionally handicapped. In order to compare the reliability of the medical findings from the UCLA Medical Center, two other physicians, Kenneth Zike, M.D., and Robert Sedgewick, M.D., were asked to review Dr. Grossman's and Dr. Walter's work and to make independent diagnoses. The former doctors were conducting examinations to locate neurological impairments in a population of pupils selected because of serious learning and behavior problems in a cooperative project conducted by schools in Los Angeles County and the office of the Los Angeles County Superintendent of Schools. The two groups of diagnoses -- one from the state project and one from the county project -- inferred from case material on these 20 pupils demonstrate that doctors have a difficult time agreeing on what signs in the medical records constitute evidence of neurological impairment, particularly when attempts are made to correlate these findings with behavioral phenomena. The disagreement increases as the material increases in subjectivity. In addition, the weight given to a particular finding varies from doctor to doctor, thus making the reliability of a diagnosis of neurological impairment in a sample of pupils with learning and behavior problems in school highly questionable. It should be emphasized that many or all of these "minimal" neurologic findings border on the spectrum of "normal."

A summary of the medical diagnoses of Dr. Grossman and Dr. Walter indicated that they found these 20 pupils to be children with good overall physical health, no clearly defined neurological abnormality, and no other medical findings which could be found to correlate with the behavior and learning problems of the pupils. A summary of the medical diagnoses for these same 20 pupils by Dr. Zike and Dr. Sedgewick showed that four pupils were diagnosed as neurologically handicapped, and the records of six others were found to provide some evidence to support a diagnosis of neurological impairment. When the diagnoses of neurological impairment by these latter doctors were collated with the psychological and educational data and evaluated together for evidence of neurological impairment by the psychologists working with the Los Angeles County study, ten of the 20 pupils were judged to be similar to those in the special classes for the neurologically handicapped conducted by the NH Project of the Los Angeles County Superintendent of Schools and would have qualified for that program had they been in schools under the Los Angeles County Superintendent's jurisdiction.

The 20 pupils described in this report were enrolled in a variety of special educational programs conducted by the schools and the State Department of Education and designed to assist the pupils with their learning and related school problems. They were placed in the programs on the basis of school difficulties, not on the basis of medical diagnosis. The statement has been made often that pupils with a positive diagnosis of neurological impairment require a unique educational approach and that they cannot be helped successfully in programs with a heterogeneous group of pupils with difficulties. In order to support this statement, a review was made of the educational records of the ten pupils judged to be neurologically impaired by the Los Angeles County Superintendent of Schools group.

When reading and arithmetic achievement scores were available, the average gain was computed after one and two years in various special class programs by these ten pupils. From the range of achievement gain listed for both achievement areas, it was noted that some pupils were not able to improve very readily in achievement; however, for the group taken as a whole, the average gain in achievement in the special program exceeds what would be expected from pupils in regular classes. The inference is that as a result of the special program, the school learning of these pupils had changed from a nonfunctioning level to one where the possibility of achievement consistent with ability might be obtainable.

This study provides information regarding several aspects of proposed educational programs for pupils with suspected neurological handicaps. One is that a reliable diagnosis is difficult if not impossible to obtain in any but the most severe case. Another is that assuming that one has reliable diagnoses, the education of these pupils can successfully proceed in classes for children with a variety of learning and behavior problems. In addition, these data support the conclusion that a special educational category for neurologically handicapped pupils separated from other pupils with school difficulties is not necessary for the successful remediation of the learning and behavior problems of the pupils in school.

The importance of this study for educational programs for pupils with emotional handicaps is that these pupils have had generally good physical health but serious learning and behavior problems, some of which can be remediated in special programs designed to assist them in the public school. In the majority of cases in which a pupil identified as emotionally handicapped might have a related organic impairment, his educational needs can be adequately met in a program in which he becomes part of a heterogeneous group of pupils with a variety of problems. The important factor in school placement is that these children must have help. Successful school experiences in some instances helped these children mediate a difficult home situation. The ideal circumstance is one in which the family and the school reinforce one another. Even though this may not be the case, the school needs to do its best for the child. In all cases it is essential to develop special programs in terms of educational needs of children and not on the basis of medical, psychological, or sociological diagnoses.

APPENDIX

In addition to the selected references, which appear first, the case records of the 20 pupils on whom this study is based have been placed in the appendix. Included in each case is a description of the child's school history, test results, medical records, school placement, and a follow-up made at least two years after the special help in school was provided.

These records have been included in the publication so that those who wish may make their own ratings of the extent to which medical, psychological, or social factors can be held accountable in explaining the etiology of the learning and behavior problems of these pupils.

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CASE 1

Girl -- Thirteen Years, Eight Months

School Behavior

This girl's teachers describe her as having a low self-concept. She doesn't accept discipline well, either from her mother or from the teachers. She plays in the orchestra, but when the orchestra makes a public appearance, she doesn't come. She has been referred to a local child-guidance clinic for tics and enuresis, but these problems have continued. She can be described best as a passive child who likes routine, monotonous tasks requiring little effort and providing little chance of failure. She is afraid of making mistakes, so any work that requires a small amount of additional effort is either not attempted or given up after an initial effort.

The Results

Both group-administered and individual intelligence tests indicate that she has low average school learning ability. Accordingly, her achievement in reading and arithmetic has always been below grade.

Verbal	Raw score	Scaled score	Performance	Raw score	Scaled score
Information	14	8	Picture Completion	10	7
Comprehension	11	7	Picture Arrangement	35	12
Arithmetic	8	7	Block Design	12	7
Similarities	13	11	Object Assembly	23	9
Vocabulary	35	8	Coding	54	13
(Digit Span)	9	8	(Mazes)		
Sum of Verbal Tests		49	Sum of Performance Tests		48
Verbal IQ	41	89			
Performance IQ	48	97			
Full Scale IQ	89	92			

Medical Report (ten months after study began)

History of Present Problem. The patient is a very nervous child, according to the mother, and "blows her top" easily. She has many difficulties in relating to her mother; she used to be enuretic and had tics of many kinds, particularly head shaking. At the age of three years, the mother took her to the White Memorial Hospital because of her enuresis. She was told that there was nothing wrong with the child. When the girl was in the fifth grade, her mother took her to the Los Angeles Child Guidance Clinic because of head-shaking tics. They attended the clinic an hour each per week for about six months. The mother remained confused, feeling that she had not been helped to any extent, even though the child's tics decreased considerably after this experience at the clinic and are very infrequent at the present time.

Past History. The mother became pregnant two years after her marriage. She states that she was sick all the way through the pregnancy, receiving intravenous fluids intermittently. She was in labor for about three hours and delivery was normal. The patient weighed 7 lbs., 5½ oz., at birth. There was no resuscitative difficulty, no jaundice, and no seizures. The mother states that she was run down for ten years after her pregnancy with this child. Because of the very poor state of health during that pregnancy, she never became pregnant again. The patient was breast-fed for about one week and then bottle-fed because of inadequate milk. She sucked poorly on the breast but apparently did quite well when bottle fed. Her development was thought to be within normal limits. She sat at about six months of age, walked at about one year, and talked at about 15 months. Toilet training began at about one year and was completed by two years of age with no particular difficulties. About one or two years after being trained, the patient began to have enuresis almost nightly until about a year ago. She had chicken pox at the age of three, mumps at seven, both of which were uneventful. The patient had her menarche in May, 1959, which was the only period thus far. She did fairly well in school until last year when she flunked almost all of her courses. She is presently in a special group for emotionally disturbed children where she has been for the past year. The mother feels that she has improved greatly.

Family History. The family consists of the mother, age 33; father, age 43, a machinist; no siblings. There is no family history of any disorders of the central nervous system.

Physical Examination. The physical examination reveals a thirteen-year, eight-month-old white female whose general condition is good. Height, 151 cm.; weight, 42.2 kgms. The patient is right-handed; blood pressure is 100/70; pulse, 78; respiration, 18. She is in a pubescent state--has pubescent breast development, axillary and pubic hair. The remainder of the general physical examination is not remarkable.

Neurological Examination. Neurological examination revealed a pubescent white, right-handed female who was alert and cooperative during the examination. Her overall development appeared to be within normal limits for her chronological age. Cranial nerves were examined in detail and found to be intact. The optic fundi were normal. Examination of the motor system revealed no evidence of spasticity or weakness. The myotatic reflexes were physiologic and symmetrical. The abdominal reflexes were present. The plantar reflexes were flexor. Sensory examination revealed no abnormalities in the modalities of pain, touch, position, and vibration. Stereognosis was normal. The patient's coordination was good. There was no evidence to suggest any cerebellar dysfunction. The patient's gait and speech were normal. The remainder of the examination was not remarkable.

Laboratory Data. An electroencephalogram was done on July 17, 1959. The tracing was obtained using ten electrodes with both a scalp-to-scalp and scalp-to-ear technique. There is a fairly rhythmical basis of frequency of nine to ten cycles per second of high amplitude appearing primarily over the posterior scalp regions and to a lesser degree in other channels. At times, 15 to 20 cps activity appeared anteriorly, probably resulting from sedation. During drowsiness and sleep, some 14 cps sleep spindles are present along with biparietal humps. Hyperventilation resulted in some five to seven cps waves. A suspicious run of slow irregular five to seven cps waves appeared some 40 seconds following the termination of overbreathing. There are no focal abnormalities during the tracing. Photic stimulation did not significantly alter the record. Impression: essentially normal EEG. Comment: the single paroxysmal following hyperventilation probably is not clinically significant.

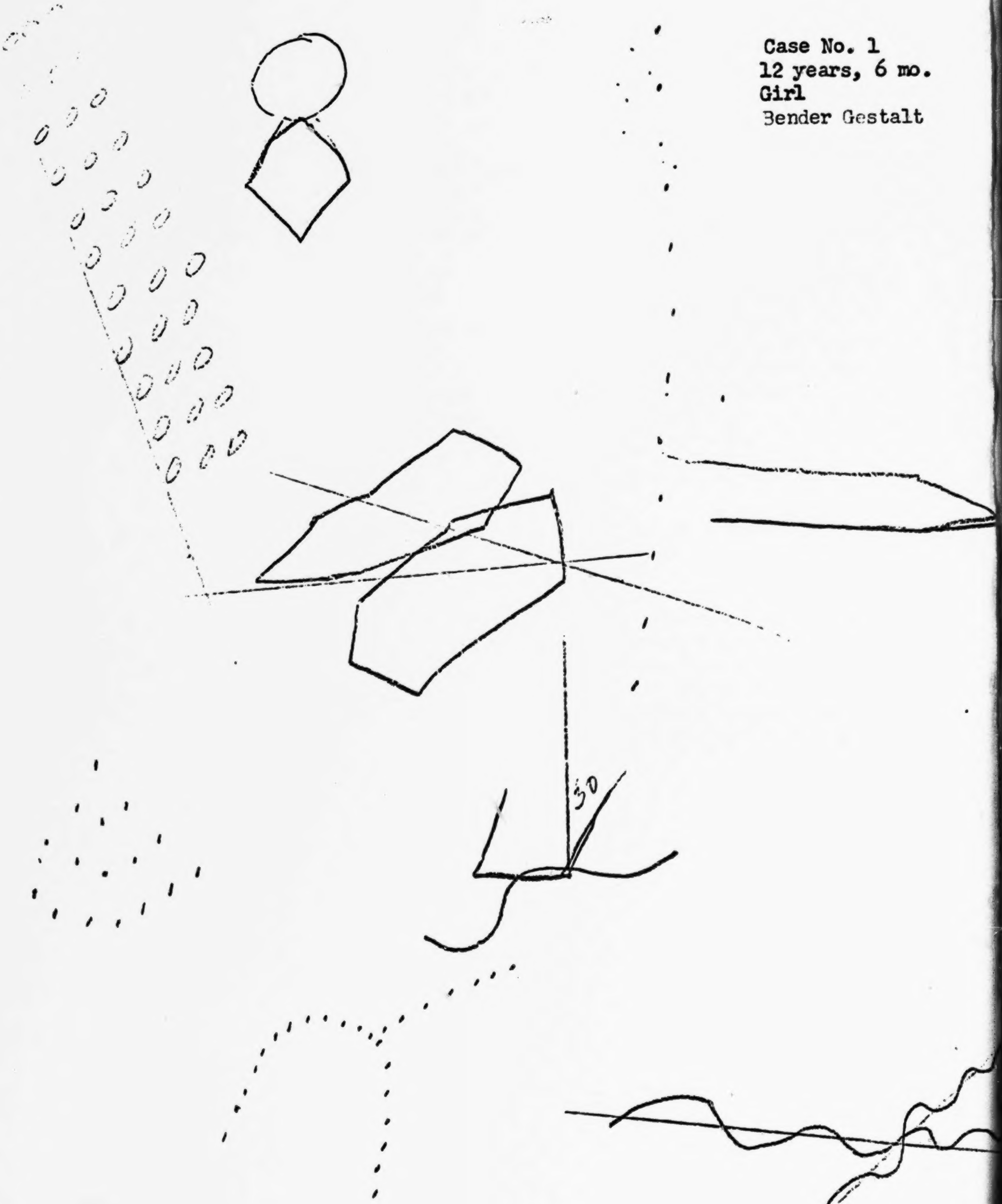
School Placement

Case 1 was placed in a regular school program with the exception of one or two hours a week in an activity club with girls of her age who were also experiencing some difficulty in school. About eight girls were in the group with a teacher who served as group leader. The activities of the club were determined by the girls with the primary goal of the group to provide for successful peer relationships.

Follow-up (two years, two months after study began)

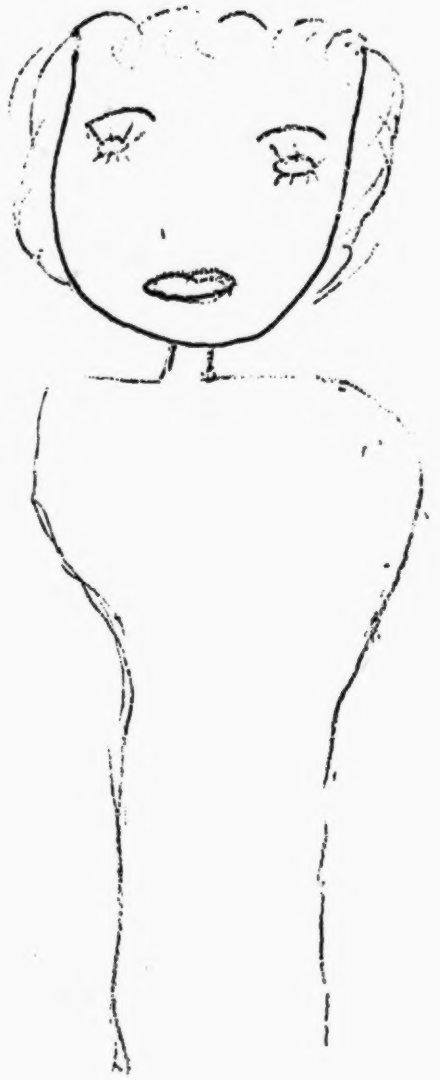
Case 1 has been an unhappy child; however, her experiences in the small group project seemed to be helpful. She continued to be apprehensive when faced with an unfamiliar task. She disliked playing in the orchestra for public appearances. She complained of illnesses, had a tendency to daydream, but teachers were encouraged by her willingness to cooperate. Last spring she received an unsatisfactory notice in English. She is presently enrolled in the beginning months of tenth grade. She failed the one test given in U.S. history, was "slow in getting ready to participate in P.E.," was "below average in her homework in English, and didn't contribute orally. She had a tendency to be vague and preoccupied."

Case No. 1
12 years, 6 mo.
Girl
Bender Gestalt



Case No. 1
12 years, 6 mo.
Girl

Draw a Person



CASE 2

Boy -- Thirteen Years, Three Months

School Behavior

This boy lacks initiative and has always had trouble in school. His academic progress has been very slow. He does not possess the interest and ability to do school work, but on the other hand, he cannot accept being surpassed by anyone. His principal difficulty in school learning has been with reading. He has needed special help since he first began school. He is small for his age, lacks self-confidence, plays with younger children, and behaves in a silly fashion in order to get their approval.

Test Results

Individually administered intelligence tests have provided a conflicting picture of his abilities. His scores have ranged from a mentally retarded to a slow learning level. His achievement test scores are above what would be predicted from the intelligence test scores. They are below average but are within the middle 50 percent of achievement scores for that age and grade. One could infer that he has, at best, average learning ability and possibly less ability than that. He is achieving below grade which, if his ability is poor, would be exactly what he is capable of doing; but if his ability is average, his achievement is somewhat less than what could be predicted. In any case, his school behavior and problems in classwork have necessitated additional attention by the school to enable him to achieve and adjust adequately.

Verbal	Raw score	Scaled score	Performance	Raw score	Scaled score
Information	10	6	Picture Completion	12	10
Comprehension	9	6	Picture Arrangement	16	5
Arithmetic	8	8	Block Design	14	8
Similarities	6	6	Object Assembly	19	8
Vocabulary	26	6	Coding (Mazes)	39	10
(Digit Span)	10	10	Sum of Performance Tests		41
Sum of Verbal Tests		42			

	Scaled score	IQ
Verbal Scale	35	81
Performance Scale	41	87
Full Scale	76	83

Medical Report (one year, three months after study began)

History of Present Problem. The mother states that the patient's primary difficulty is that he just lacks initiative to do things, that he could do better in school with some effort. For the past two years, he has been in a special class doing seventh grade work; however, he should be doing eighth grade work. He has had special remedial work in reading since beginning school; his mother attributes his lack of reading skill to "his not wanting to."

Past History. The mother's condition was good during pregnancy. She was in labor for 54 hours and finally had induction. The patient was a full-term, normal delivery, weighing 6 lbs., 2 oz., at birth. Some slight cyanosis was reported in the neonatal period. No resuscitative difficulties were encountered. The patient's early development was thought to be within normal limits. He was toilet trained at one year by being tied to the stool every hour. His tonsils and adenoids were removed at five years of age. He had measles at six years and chicken pox at seven. He has had immunizations for diphtheria, pertussis, tetanus, smallpox, and poliomyelitis.

Family History. The family includes the father, age 37, a construction worker; mother, age 35; brothers, aged six and eight. The older brother is right-handed (as are most of the family), was slightly clumsy when younger, and has some reading difficulties.

Physical Examination. Physical examination reveals a thirteen-year-old Caucasian male whose general condition appears to be good. His height is 153.5 cms.; weight, 37.4. kgs.; blood pressure, 94/60; pulse, 78; respiration, 20. General physical examination revealed some dental caries. The patient is amphilateral, although he does most of his activities with his right hand. There were minimal prepubescent changes. The remainder of the examination was not remarkable.

Neurological Examination. Examination revealed the patient to be alert and cooperative. He appeared to be of average intelligence for his chronological age. He presented some evidence of mixed laterality. He was able to write with his left hand. He sights with his left eye and kicks with his left leg. However, he is able to use his right hand for eating and throwing, and he does some writing with his right hand. Examination of the cranial nerves revealed them to be intact. The optic fundi were normal. Examination of the motor system revealed no evidence of spasticity, rigidity, or weakness. The myotatic reflexes were physiologic and symmetrical. The abdominal and cremasteric reflexes were present. The plantar reflexes were flexor bilaterally. Sensory examination revealed no gross abnormality. The patient's coordination was good, and there was no evidence to suggest any cerebellar dysfunction. The patient's gait was normal. The patient did not appear to have any perceptual difficulties in the visual motor area. The remainder of the examination was not remarkable.

Laboratory Data. An electroencephalogram was obtained on December 28, 1959, using ten electrodes with both a scalp-to-scalp and scalp-to-ear technique. A portion of the recording was obtained during light sedated sleep. There is a very rhythmical basic frequency of 9 to 10 cps appearing primarily over the occipital areas during the resting state. Some irregular intermittent 5 to 7 cps activity appears anteriorly. During sleep fairly symmetrical 14 cps sleep spindles and biparietal humps are present. Hyperventilation resulted in the appearance of some amplitude increase with some questionable high potential slow 1 to 3 cps waves with intermittent spike discharges that appeared to be artifactual in appearance. The record was interpreted as being normal for the patient's chronological age, both waking and asleep. The above-mentioned 1 to 3 cps were interpreted as being artifacts.

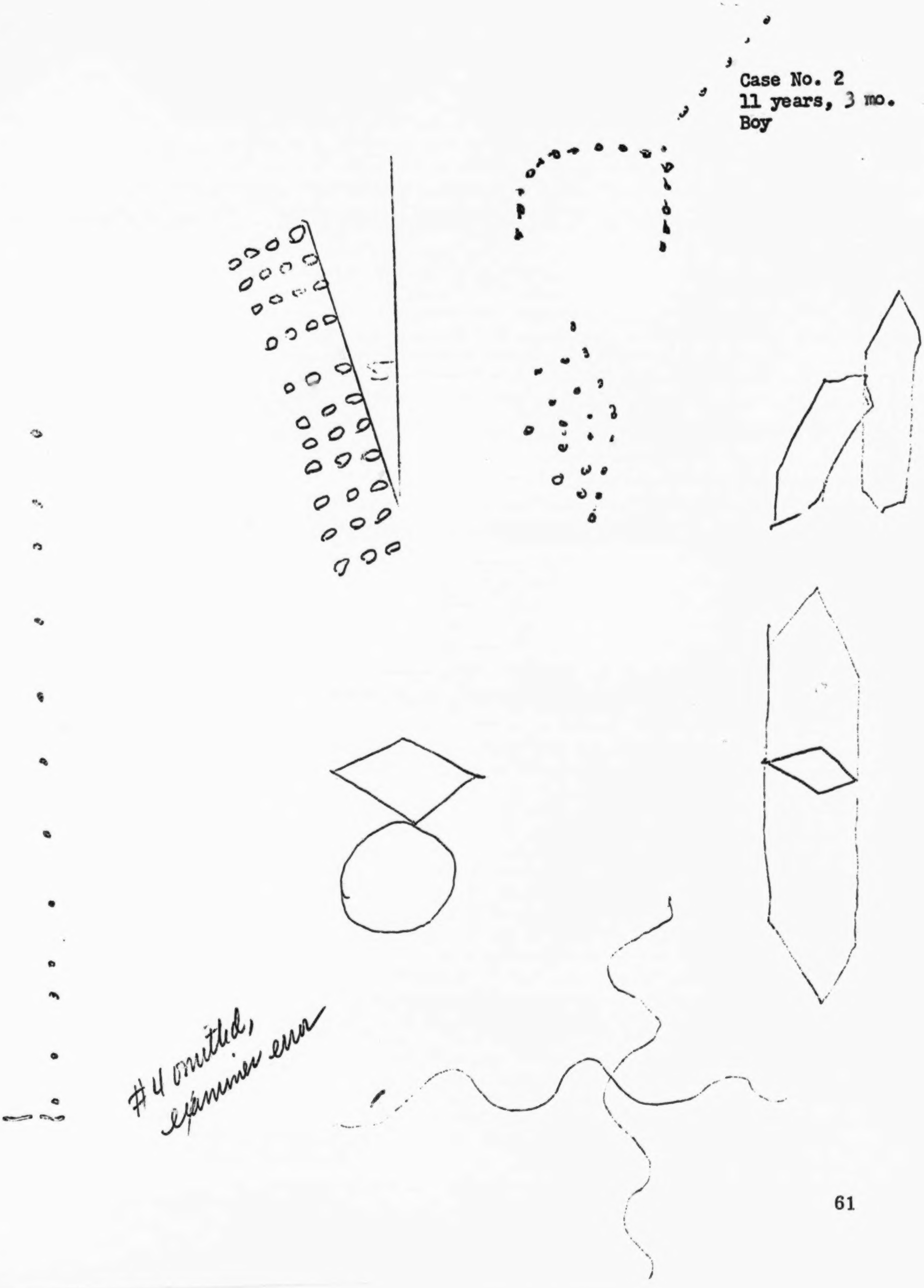
School Placement

Case 2 was placed in a special class with other boys of his grade who were also experiencing learning and behavior difficulties in school. His teacher found him to be cooperative and dependable. He got along well with the other boys in the class and had few difficulties with girls on the playground. He tolerated the school work initially, but he gave up easily.

Follow-up (three years, three months after study began)

He is still not able to read well enough to do his assignments alone. His high school counselor states that he is beginning to show some signs of growth. He is performing at an average level in high school, with above average citizenship. However, he is defiant in classes in which he does poorly, but the counselor feels that he accepts general discipline standards and may be able to complete high school.

Case No. 2
11 years, 3 mo.
Boy



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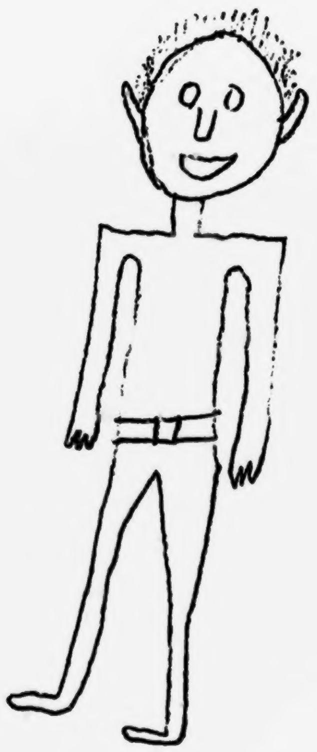
November 25, 1959

Case No. 2
11 years, 3 mo.
Boy

①



CASE 3

Boy -- Eleven Years, Two Months

School Behavior

This boy's teachers report that he is aggressive, has poor work habits, and annoys others to the point of being a serious social problem. He is a poor reader, cannot follow directions with the reading group, and is unable to do work on his own. He is inconsiderate of the feelings of others and does not like school. He has a marked sense of inadequacy. He is anxious, defensive, and insecure. He sees life as a futile business, and he seriously doubts his own abilities to master his problems. Even though he does have some success, he belittles such success and compromises his achievement. He feels any positive comparison results only from his being compared to others who are, surprisingly, even worse than he is.

Test Results

Two individual intelligence tests indicate a boy of above average ability. His reading and arithmetic achievement are below grade, and his daily classroom performance is even poorer than the achievement test scores would indicate.

Verbal	Raw score	Scaled score
Information	13	12
Comprehension	15	14
Arithmetic	8	10
Similarities	5	6
Vocabulary	36	13
(Digit Span)	10	12
Sum of Verbal Tests	67-56	

Performance	Raw score	Scaled score
Picture Completion	10	10
Picture Arrangement	26	10
Block Design	13	10
Object Assembly	23	12
Coding (Mazes)	32	10
Sum of Performance Tests	52	

	Scaled score	IQ
Verbal IQ	56	108
Performance	52	103
Full Scale	108	106

Medical Report (one year, two months after study began)

History of Present Problem. The patient is apparently the eldest of five children. He was brought to the examination by his maternal uncle. The uncle had some written information given to him by the patient's mother. He is thought to be a rather tense and apprehensive boy. No unusual acting- out behavior has been observed. He is described as being withdrawn.

Past History. The mother's pregnancy was apparently normal. The patient weighed 7 lbs., 8½ oz., at birth. No neonatal difficulties were recorded. The patient had chicken pox at four years of age and measles at eight years. He has a history of various allergies to weeds, grasses, and dusts, primarily manifested by allergic rhinitis. He has had two series of allergy desensitization procedures. At the age of five, the patient had an accident during which he rolled down a hill into a concrete wall. He had some small lacerations over the eye but no loss of consciousness was observed. At seven years of age, the patient ran into a moving car while on a bicycle. He sustained a fracture of the left arm and a small laceration of the scrotum that required three or four sutures. In general, the patient's appetite is good. He eats well and sleeps well; his general health is thought by his mother to be good. Of interest, the patient has had a habit of rocking himself to sleep since infancy in a to-and-fro pattern with similar movements on arising. He has attended a special class in school since the sixth grade and is presently in his second year in this class.

Family History. The family includes the father, age 55; mother, age 52; sisters, nine and one-half and five; and twin brothers, eight years of age. After a stormy marriage, the parents were divorced one year ago. Mother has been nervous since Case 3 was born. She feels that he has been affected by the marital discord more than the other children. His father was committed to the Camarillo State Hospital for three and one-half months in 1955 and was signed out by his wife. Diagnosis at that time was paranoid schizophrenia, apparently of long standing and too deep-seated to be cured or helped much. The mother receives state aid for the care of her children.

Physical Examination. Physical examination revealed an eleven-year-old Caucasian male whose general condition appears to be good. His height is 151 cms.; weight, 44.6 kgs.; blood pressure, 90/70; pulse, 78; respiration, 18. The patient's general condition is good. There are no major abnormalities.

Neurological Examination. Neurological examination revealed the patient to be right-handed, alert, and cooperative. His intelligence appeared to be that expected for his chronological age. He is quite tense and apprehensive. Examination of the cranial nerves revealed them to be intact. The optic fundi were normal. Examination of the motor system revealed no evidence of spasticity, rigidity, or weakness. The myotatic reflexes were physiologic and symmetrical throughout. The patient's coordination was good, and there was no evidence to suggest any cerebellar dysfunction. The patient's gait was normal. His speech was normal. Sensory examination revealed no gross abnormalities in the perimeters of pain, touch, position sense, vibration, stereognosis, or two-point discrimination. The remainder of the examination was not remarkable.

Laboratory Data. The tracing was obtained on October 26, 1959, using ten electrodes with both a scalp-to-scalp and scalp-to-ear technique. There is a poorly organized basic frequency of 8 to 10 cps appearing primarily over the posterior scalp regions. A good deal of random-appearing 5 to 7 cps activity appears anteriorly during the waking state. During drowsiness, the amount of 5 to 7 cps activity increases with fairly symmetrical 14 cps sleep spindles and biparietal humps. On a number of occasions during the recording, prominent repetitive positive spikes at 14 per second and rarely at 6 per second appear over the posterior aspects of the hemisphere both in the temporal and occipital regions, usually most conspicuous on the right. Hyperventilation for three minutes did not significantly alter the record. The record was interpreted as being mildly abnormal, demonstrating repetitive positive spikes at 14 per second primarily over the posterior aspects of the right hemisphere, along with slightly more 5 to 7 cps activity than one would expect for the patient's chronological age.

School Placement

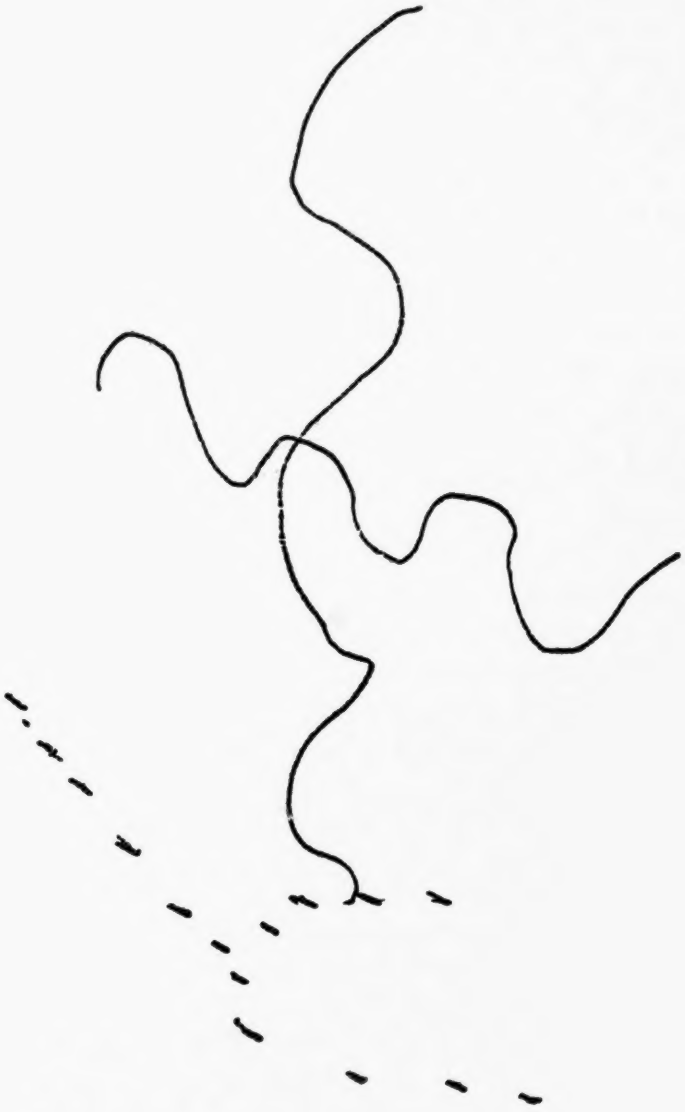
He was placed in a special class with other boys of his age who had a variety of learning and behavior difficulties. At the end of a year in this class, his behavior and achievement had improved. He had also become more outgoing and no longer was such a torment to other pupils.

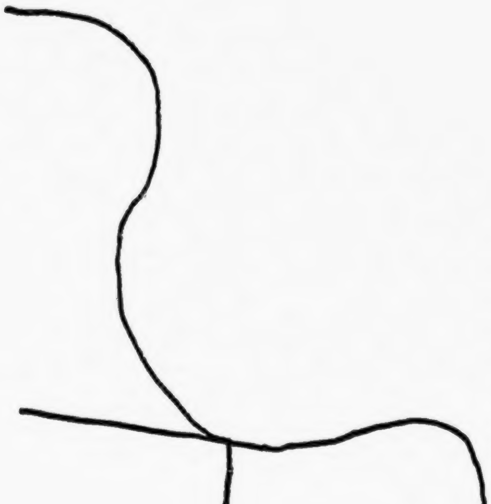
Follow-up (three years, three months after study began)

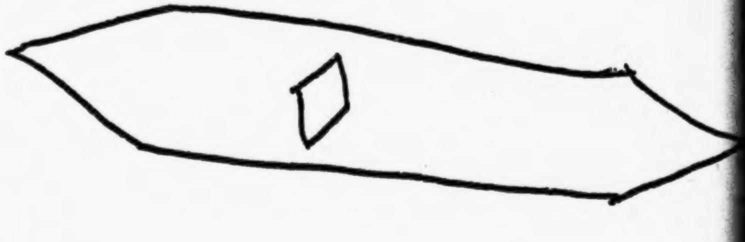
The subject's teacher described him as stubborn, moody, and occasionally cooperative. He usually completes his work but does not care about neatness and other work standards. He is still difficult to control at times. His teacher says that he would have more of a chance if his mother accepts him as he is, not as she wants him to be.

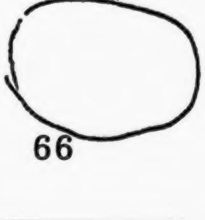
Reading and language were still trouble spots. He did his best work in arithmetic, art, and music. He is still troubled with allergy.

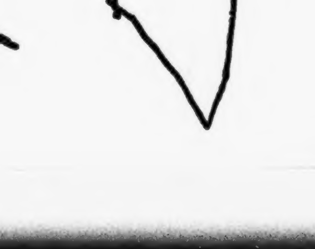
Case No. 3
9 years, 10 mo.
Boy



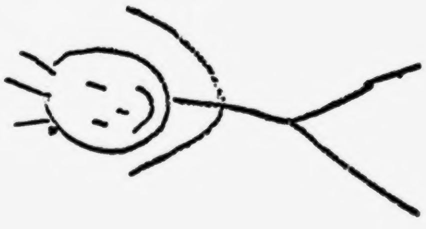








Case No. 3
9 years, 10 mo.
Boy



CASE 4

Boy -- Eleven Years, Eleven Months

School Behavior

This child's teachers have found him below grade in all learning areas since he started school. He giggles in class at others' mistakes and daydreams instead of completing assignments. Teachers note that a language handicap as well as poor ability have complicated his learning problems. In short, he is a complete failure in school, and he complicates this by being overly noticeable and a constant source of irritation and worry to his teachers. He makes up fantastic stories which have been considered to be a way of getting attention. One day when he thought that he had changed into an elephant and had other marked behavior deviations, the extremely serious and tenuous nature of his adjustment became obvious to teachers as well as to classmates.

The brother of Case 4 was institutionalized recently as a Mongoloid idiot. In the past, Case 4 has been referred to the school psychologist for help with behavior problems. During a follow-up conference with his mother, she gave the school psychologist some additional information about the family. The mother was raised in a convent with "no love." She married a man from Mexico who has frightened and dominated her since their marriage. When Case 4 was three or four, the father choked the mother, and this child took after him with a knife. She reported that she almost had a nervous breakdown and tried to commit suicide. She commented on the constant fighting at home and hoped that this would be reduced when the father returned to Mexico. She also had excessive feelings of self-reference and reported that the neighbors "had been talking about her ever since she went to the movies."

Test Results

In spite of the fact that Case 4 feels that he is like his mentally retarded brother in ability, he had a low average score on an individual intelligence test with a fair amount of discrepancy between the various individual learning tasks required on the test. He scored well on reading and arithmetic achievement tests, but he was unable to read orally well enough to achieve a minimum score on an oral reading examination. Since he has been found to be far below grade on all school tasks, one has to minimize the reading and arithmetic test scores and infer that Case 4 is a boy with low average ability and retarded learning accomplishments.

Verbal	Raw score	Scaled score
Information	10	8
Comprehension	11	10
Arithmetic	6	6
Similarities	4	5
Vocabulary	16	5
Sum of Verbal Tests	34	
Verbal IQ	34	80
Performance IQ	56	108
Full Scale IQ	90	93

Performance	Raw score	Scaled score
Picture Completion	13	14
Picture Arrangement	20	8
Block Design	18	11
Object Assembly	25	14
Coding (B) (mazes)	29	9
Sum of Performance Tests	56	

Medical Report

History of Present Problem. Details of the patient's history were impossible to obtain. The patient himself was alert and cooperative but could give little insight into the reason for appraisal by the examiner. His uncle, who accompanied him, not only knew nothing of the patient's medical and social history, but also spoke very little English so that communication was a problem. The patient had been attending some special class in school. He related that the reason his mother could not come to this examination was because she is on vacation. Unfortunately, no further pertinent items of history could be obtained.

Physical Examination. Physical examination, which was given one year, nine months after the study began, revealed an almost 12-year-old male of Mexican descent whose general physical condition appeared to be good. He was somewhat apprehensive. His height was 140 cms.; weight, 36 kgs.; blood pressure, 100/70; respiration, 20; pulse, 76. The general physical examination revealed no major abnormalities.

Neurological Examination. Neurological examination revealed the patient to be right-handed. He was alert and cooperative, and his intelligence appeared to be that expected for his chronological age. Examination of the cranial nerves revealed them to be intact. The optic fundi were normal. Examination of the motor system revealed no evidence of spasticity, rigidity, or weakness. The myotatic reflexes were physiologic and symmetrical. The abdominal and cremasteric reflexes were present. The plantar reflexes were flexor bilaterally. Examination of the sensory system revealed no abnormalities to pain, touch, position sense, vibration, stereognosis, or two-point discrimination. The patient's coordination was good, and there was no evidence to suggest any cerebellar dysfunction. The patient's gait and speech were normal. The remainder of the examination was not remarkable.

Laboratory Data. The patient came to the medical center several hours late, and unfortunately an electroencephalogram could not be obtained on June 17, 1960. An appointment was made for the patient to come back on June 20, 1960, at 12:30 p.m. The patient failed to keep this appointment, so that we do not have an electroencephalogram on him.

School Placement

Special placement was available, and Case 4 was placed with a few other boys and girls in a special remedial reading group. The emphasis in this program was on the developmental and remedial reading tasks in the hope that improvement of school performance would aid the pupils in their school and behavioral adjustment.

Follow-up at End of Two Years in Reading Program

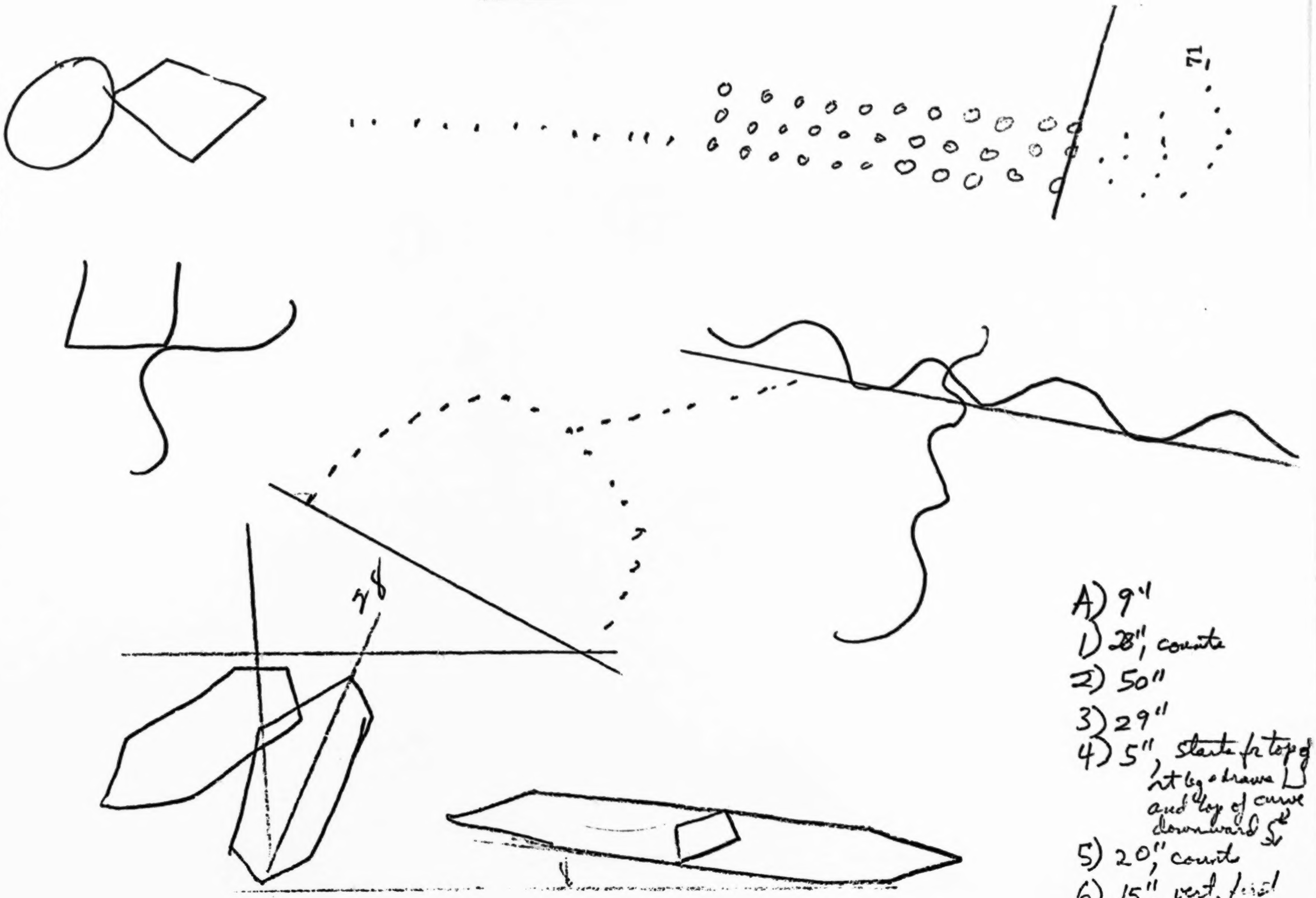
Classroom Teacher's Evaluation. The subject's interest in reading has improved. He makes an effort to do additional reading. Word analysis is easier for him. His comprehension is better. He has improved remarkably.

Psychologist's Evaluation and Recommendations. Case 4, due to a confused home situation, was often unable to contain himself. Frequently he speaks out and argues, but this type of behavior, as a whole, seems to be lessening. Cheating has ceased. He has actually begun reading books upon encouragement. He seems to appreciate the additional support of a small group and accepts the teacher.

By June, 1961, this boy had left the district and was last known to be living in Mexico.

Top

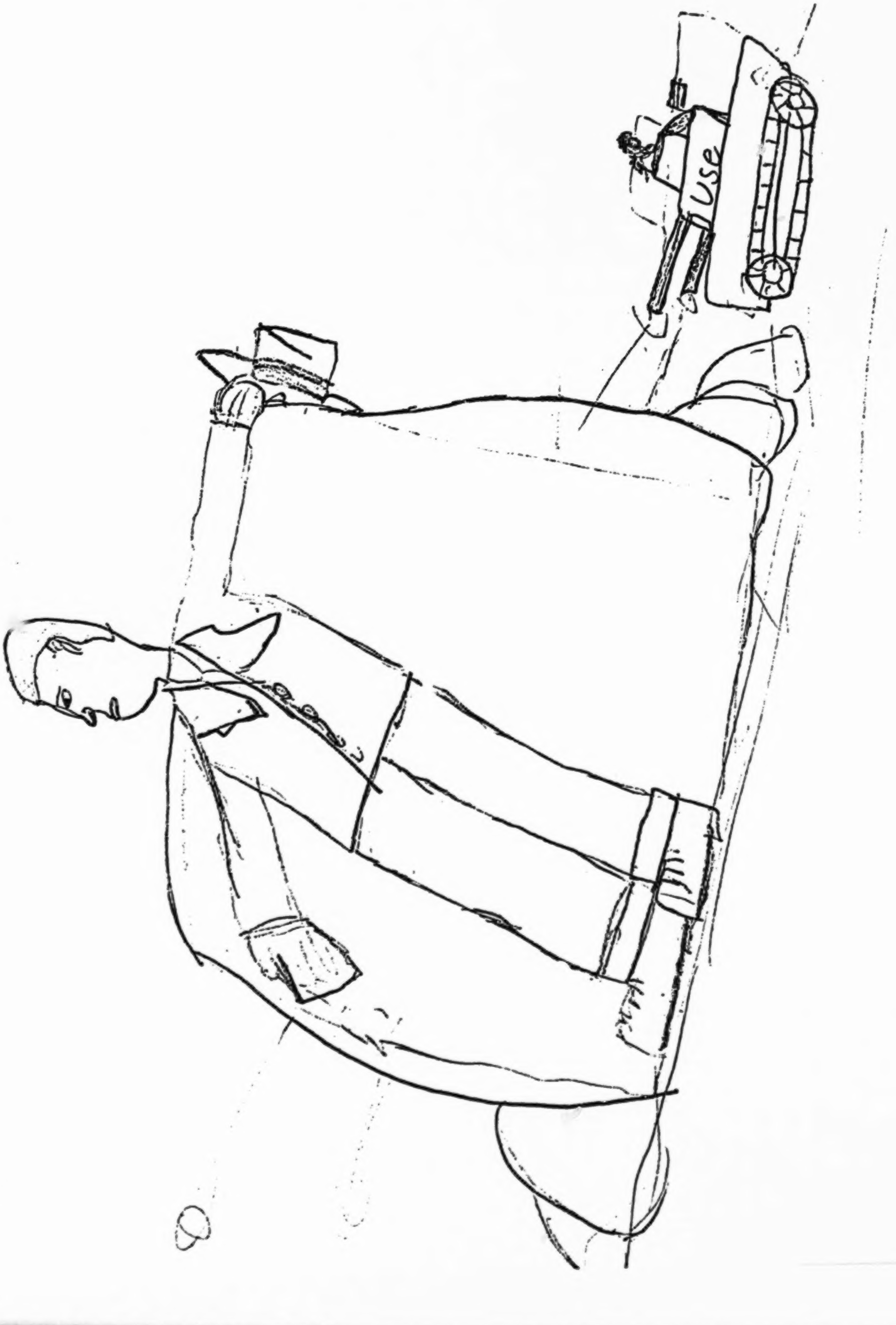
Case No. 4
9 years, 10 mo.
Boy
Bender Gestalt



A) 9"
1) 28", counts
2) 50"
3) 29"
4) 5", starts fr top of rt leg & draws ⅃ and top of curve downward
5) 20", counts
6) 15", vert. first
7) 21", lat. first
8) 12"

①

Case No. 4
9 years, 10 mo.
Boy
Draw a Person



CASE 5

Girl -- Seven Years, One Month

School Behavior

Even though she is only in the first grade, Case 5 has had serious problems as noted from the first day of school. Her behavior can be described as aggressive, irritable, and restless, and she often hits other children. She is large with poor muscle coordination. She has speech difficulties for which her sister teases her regularly, and during kindergarten she often refuses to speak. She is ill-tempered, and she baits other children in her class. She refuses to obey the teacher, and when demands are made on her she sulks and becomes cross.

Test Results

Much praise and encouragement were needed before she could complete the individual intelligence test; therefore, the results of the test were not considered valid. Her score, however, indicated borderline mental retardation with a fairly wide range of performance. She has been in first grade too short a time to get a measure of her achievement, but her classroom performance and behavior have inhibited what learning efforts she has made, if any. A prediction of her future success in school is problematical.

Verbal	Raw score	Scaled score
Information	5	7
Comprehension	5	8
Arithmetic	3	7
Similarities	2	6
Vocabulary	12	6
(Digit Span)	0	2
Sum of Verbal Tests		36-30

Performance	Raw score	Scaled score
Picture Completion	2	4
Picture Arrangement	2	5
Block Design	9	4
Object Assembly	7	7
Coding (mazes)	28	10
Sum of Performance Tests		30

Medical Report (ten months after study began)

History of Present Problem. The patient has been fussy in school and has had difficulty in relating to her peers. Academically, she has done quite well. She provokes her peers and also her older sister. Her mother did not feel that she was particularly nervous. She has just finished the first grade, having already failed one grade. She is among the tallest in her class and is also the oldest girl in the room.

Past History. The mother's pregnancy was uneventful. She was in labor for about two hours. The patient weighed 9 lbs., 2 oz., at birth. No resuscitative difficulties were encountered. The patient was bottle-fed and had no difficulties. Her development was thought to be within normal limits. She walked at 12 months of age and began to speak distinctly at three years of age. Her coordination was thought to be somewhat poorer than that of other youngsters of her age. She has many fears. She cannot ride a two-wheel bicycle as yet and had difficulty learning to roller skate; however, she does the latter quite well at the present time. She had German measles in June, 1959; her tonsils and adenoids were removed in July, 1958. She has had no other illnesses of any kind.

Family History. The family consists of the father, age 36, a factory worker; mother, age 38, also a factory worker; sister, age 13. There is no family history of any mental disorder or disorder of the central nervous system.

Physical Examination. Examination reveals a seven-year-old white female whose general condition appears to be good. Her nutrition is excellent. Her height is 128 cm.; weight, 65 lbs.; blood pressure, 104/72; pulse, 78; respiration, 20. The general physical examination revealed her overall state of health to be excellent. There were no abnormalities.

Neurological Examination. Examination reveals the patient to be a seven-year-old white female who was alert and cooperative during the examination. Her general development appeared to be within limits expected for her age. The cranial nerves were examined in detail and found to be intact. The optic fundi were normal. Examination of the motor system revealed no evidence of weakness or spasticity. The myotatic reflexes were physiological and symmetrical. The abdominal reflexes were present; the plantar reflexes were flexor bilaterally. Examination of the sensory system revealed no abnormalities. The patient's coordination was generally quite good; however, she did have difficulty in performing rapidly alternating movements as well as most youngsters her age. This might have been due to tension during the examination. In general, her coordination did not reveal any evidence to suggest any cerebellar dysfunction. Her gait and speech were normal. The remainder of the examination was not remarkable.

Laboratory Data. An electroencephalogram was done on July 10, 1959. The tracing was obtained, using 14 electrodes, with both a scalp-to-scalp and scalp-to-ear technique. A portion of the tracing was obtained during light sedated sleep. While the girl is awake, there is a poorly organized basic frequency of 6 to 7 cycles per second (cps) of moderate to high amplitude appearing over the posterior scalp regions. In addition, fairly rhythmical 8-cps activity appears over the central temporal and frontal regions. On occasions during the recording, there is a shifting amplitude asymmetry, as well as some frequency changes over the occipital regions. A single focus cannot be identified. During sleep, 14-cps sleep spindles are present, along with fairly symmetrical biparietal humps. Hyperventilation resulted in an increase in amplitude, with the appearance of slow 5 to 7-cps waves. Photic stimulation did not significantly alter the record. Impression: mildly abnormal EEG with slow 5 to 7-cps activity appearing posteriorly to a greater degree than would be expected for the patient's chronological age. A focus cannot be identified.

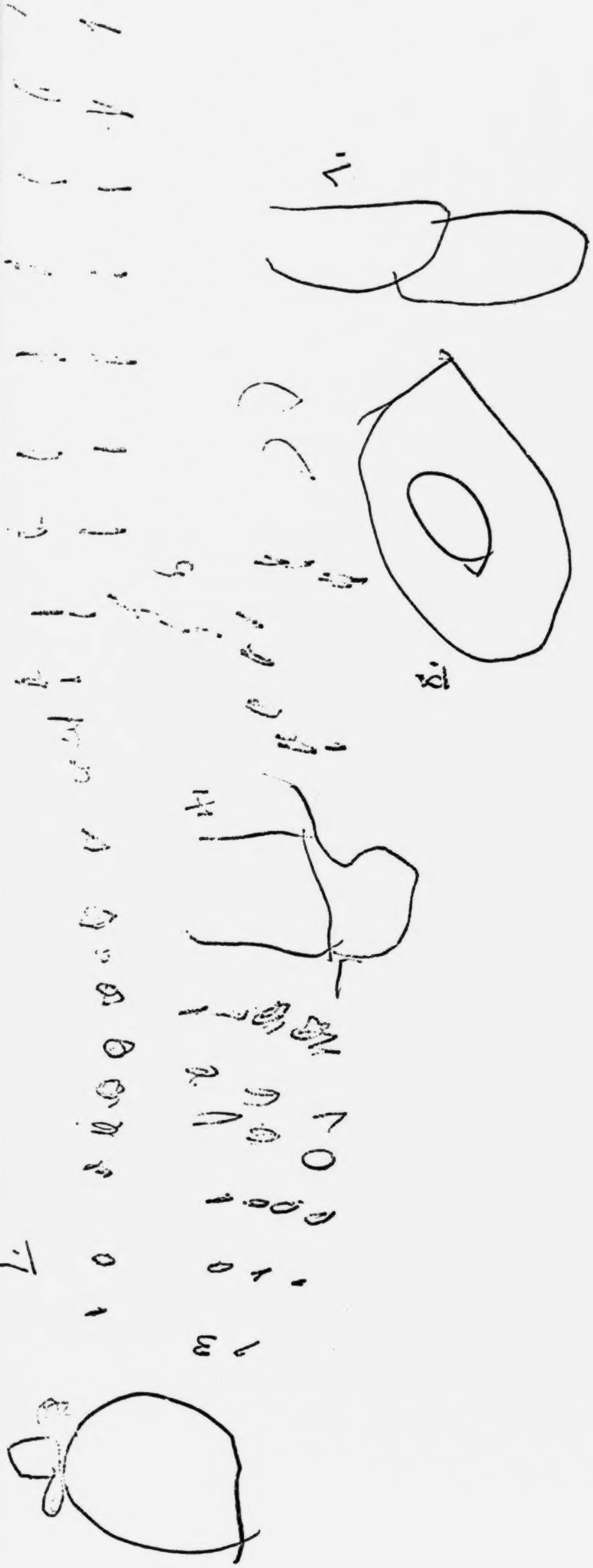
School Placement

Case 5 was placed among a small group of other first-grade pupils for an hour a week and given opportunities for free play with few demands made on her and under the direction of a trained teacher. The emphasis of this program is on giving these young children an opportunity to work off tensions and anxieties generated by the demands of the academic program of school. It is a place for them to find success in contrast to the failure they feel in the regular class program.

Follow-up (two years, two months after study began)

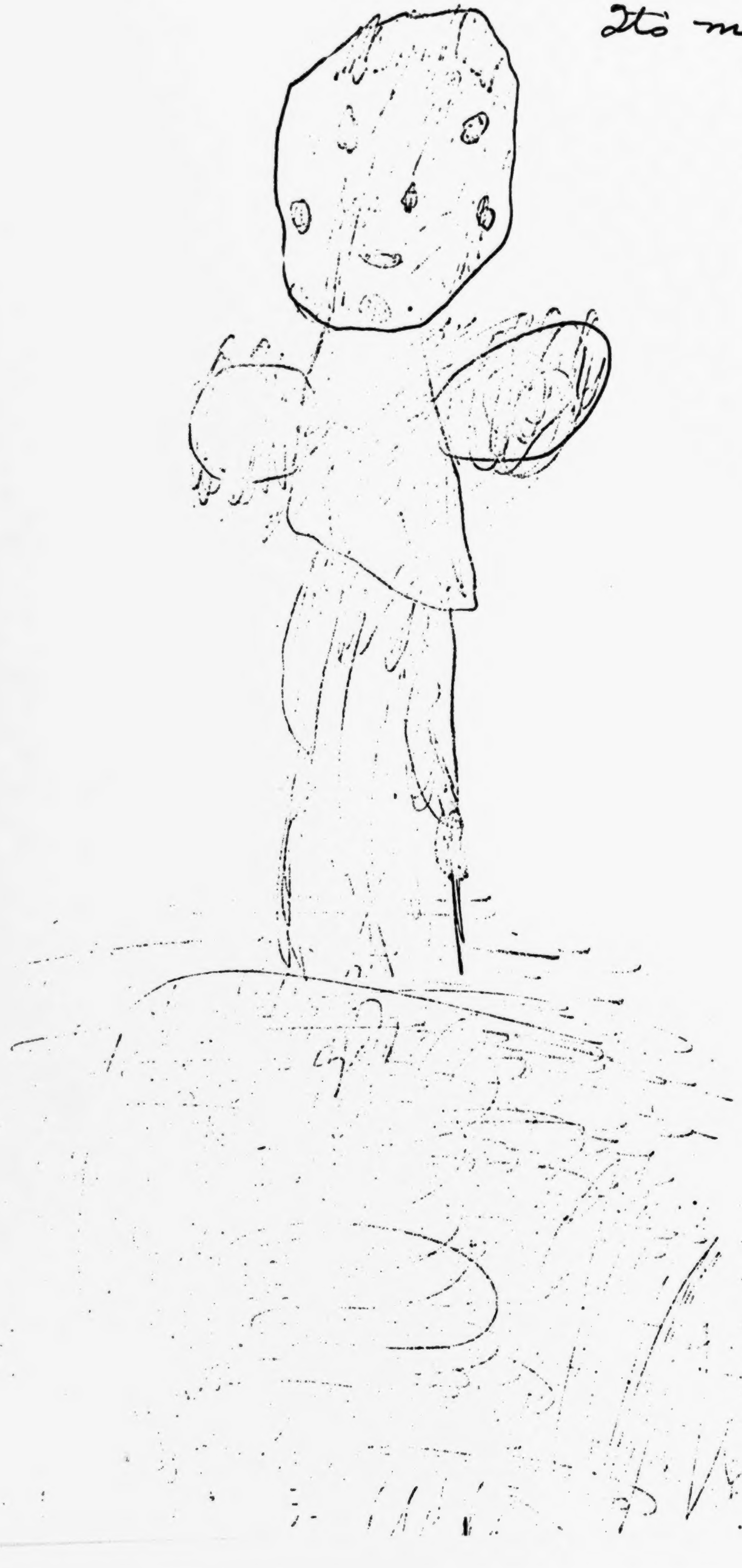
Moved to another city on November 18, 1959. In first grade she acted like a spoiled child and expected to be waited on. She made fairly good academic progress the second year she was in the first grade.

Case No. 5
6 years, 4 mo.
Girl



D.A.P.

Case No. 5
6 years, 4 mo.
Girl



"It's my Sister"
8 yrs. old - she says

"Playing on the grass."

Sister really 12.

CASE 6

Boy -- Fifteen Years, Seven Months

School Behavior

This boy is a high school student who has had difficulty in school since the first grade. The school believes that some of his school problems are tied in with a thyroid difficulty. Teachers usually found him respectful and polite, but he was not an asset to the class. He is occasionally truant from school, and the attendance officer feels that the mother supports him with excuses when he chooses to stay out for a day or two.

Test Results

An individual intelligence test placed Case 6 in an above-average-ability classification. His ability far exceeds his achievement in school. In the tenth grade his achievement test profile placed him close to the national average, but such performance is not typical of his day-to-day classroom work.

Verbal	Raw score	Scaled score
Information	22	13
Comprehension	17	10
Arithmetic	15	15
Similarities	12	9
Vocabulary	58	14
(Digit Span)	10	0
Sum of Verbal Tests		58
Verbal IQ	58	110
Performance IQ	57	110
Full Scale IQ	115	111

Performance	Raw score	Scaled score
Picture Completion	17	14
Picture Arrangement	31	9
Block Design	33	10
Object Assembly	27	12
Coding (mazes)	51	12
Sum of Performance Tests		57

Medical Report (nine months after study began)

History of Present Problem. The patient has had some difficulties in school and was doing poorly to the point where he was a serious problem to his teachers while he was in the sixth grade. His development in other spheres has been thought to be normal. He has had psychological studies in school which, according to his mother, reveal that he has a normal IQ; however, she does not feel that he uses his potential. He apparently does not make good use of his time. He gets along fairly well with his peers although he fights a great deal with his sister. Of interest is that later during the interview the mother felt that the patient was not liked by his peers but had no trouble with people at home. He acts out through other boys and apparently gets them into difficulties.

The patient has had low grades in school ever since beginning the primary grades. He has a great deal of difficulty going to sleep and wakes up rather late. Ordinarily he wakens about 10 a.m. and feels fine. He had been examined by the family physician and had a basal metabolism test and a blood test. A diagnosis of hypothyroidism was made and the patient was advised to take two tablets of thyroid daily, which he has done for the past year. No particular effect, either good or bad, has been apparent to the mother since he took this medication. The patient refuses to accept authority from any such figure. He is a passive-aggressive personality, according to the mother. The patient apparently has missed a great deal of school, and he says he doesn't know why. The mother feels it is because he slept too late and that he had thyroid gland trouble. The patient is to repeat the tenth grade but should be going into the eleventh grade.

Past History. The mother's pregnancy was uneventful. The patient was born after an uneventful labor and was apparently a normal delivery. The patient weighed 7 lbs., 14 oz., at birth. No resuscitative difficulties were encountered. The patient was born while his father was in service. His early development was thought to be within normal limits. He had the usual childhood diseases, which apparently were uneventful. The patient has had no serious accidents nor is there evidence to suggest any disturbance of the nervous system.

Family History. The family consists of the mother, age 45 years; stepfather, 38 years, who is an electronic inspector; and a sister, 17 years, who attends high school. The patient's mother and father were divorced in 1954. His father, who is a buyer, has a history of excessive alcoholism. The patient's mother was married prior to her marriage in 1932. Her first husband died of peritonitis after six years of marriage. She has two sons from this marriage, aged 27 and 24 years; both are married.

Physical Examination. The physical examination revealed a pubescent white male whose general condition is good. His height is 175 cms.; weight, 65.8 kgs.; blood pressure, 110/70; pulse, 78; and respiration, 20. The patient's general condition was excellent. He was in a good nutritional state. There was a fairly large tense hydrocele on the right side of the scrotal sac about 8 cms. in diameter. This was nontender and, according to the patient, caused him no particular difficulty. He has been aware of it for some months but apparently has not seen a physician about it. He denied any concern about this difficulty. The genitalia were pubescent. He had axillary and pubic hair. The remainder of the general physical examination did not reveal any abnormalities.

Neurological Examination. The patient was right-handed, alert, and cooperative, and his general development seemed to be as expected for his chronological age. The cranial nerves were examined in detail and found to be intact. The optic fundi were normal. Examination of the motor system revealed no evidence of spasticity or weakness. The myotatic reflexes were physiological and symmetrical. Sensory examination revealed no abnormalities. The abdominal and cremasteric reflexes were present. The plantar reflexes were flexor bilaterally. The patient's coordination was good and there was no evidence to suggest any cerebellar dysfunction. His gait and speech were normal. The remainder of the examination was not remarkable.

Laboratory Data. An electroencephalogram was done on June 26, 1959. The tracing was obtained, using 14 electrodes, with both a scalp-to-scalp and scalp-to-ear technique. The basic frequency was about 10 cps appearing in all leads. Hyperventilation for three minutes did not significantly alter the record. There were no signs of abnormality. The electroencephalogram was interpreted as being normal for the patient's age.

Summary and Impression. The clinical manifestations are primarily those of a basic emotional disturbance. Clinical neurological appraisal and electroencephalographic examination did not reveal any evidence to suggest any organic disturbance of the central nervous system.

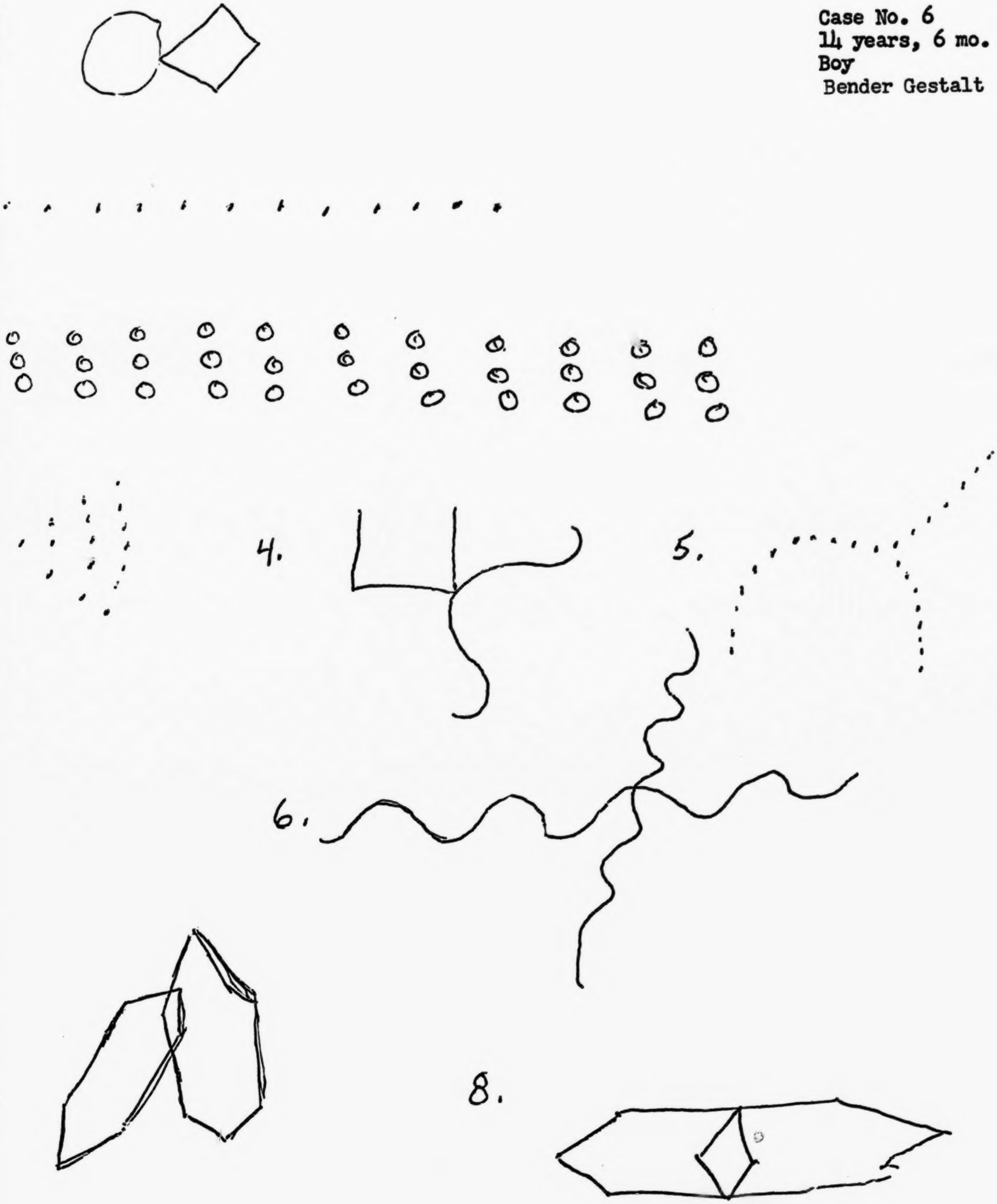
School Placement

Case 6 was scheduled for a group counseling class one period a day for five days a week for one school year. The group leader provided opportunities for discussion of school programs, vocational plans, relationships with peer and authority figures, and other topics of interest.

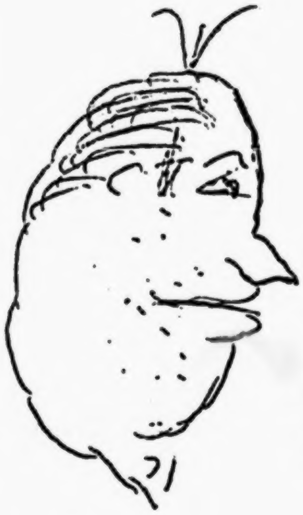
Follow-up (three years after study began)

At the end of the year in the group counseling class, the school record of Case 6 was undistinguished from the standpoint of both credits earned and absence rate. During his second year of high school, his marks were mostly "F." Drops and cuts were prominent on his record. He had a 30 percent absence rate. He was barely in school during that year. At the beginning of the next fall semester, he attended only three days in two weeks and was dropped from school records. Rumored enrollment in a nearby junior college was denied by the junior college. He secured employment in a bowling alley and then in a small electronic-parts manufacturing firm where his mother was employed. No further information is available on his work program.

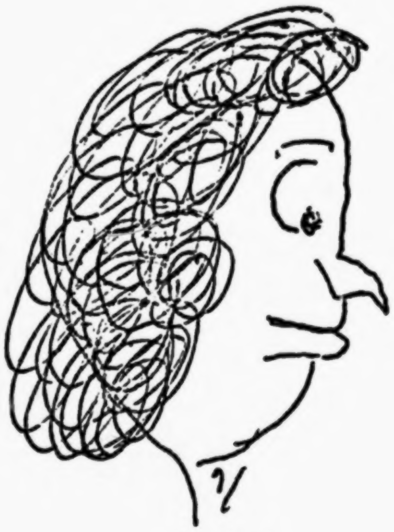
Case No. 6
14 years, 6 mo.
Boy
Bender Gestalt



Case No. 6
14 years, 6 mo.
Boy
Draw a Person



POP



mom

has 1 brother + 1 sister; rejects drawing them - both are older.

CASE 7

Boy -- Eleven Years, Five Months

School Behavior

This boy has been suspended from school at least five times, but never officially excluded. He is very active, pays no attention to his classroom group, and has no interest in school. His teachers have had trouble with him constantly. He does no classwork unless the teacher works with him individually. Occasionally, he wishes to help with classroom chores but then often gets upset when he cannot have his own way. He uses obscene and vulgar language, constantly fights, has tantrums, takes things belonging to others, and has assaulted the teacher. Beyond these, he is explosive and destructive.

Test Results

The results of an individually administered intelligence test indicate average intelligence with no particular strengths or weaknesses, except perhaps weakness in tasks which require concentrated attention. His achievement is below grade, but he is not severely retarded in learning tasks. His greatest handicap is self-destructive emotional behavior which prevents him from applying himself to any school task whatsoever.

Verbal	Raw score	Scaled score	Performance	Raw score	Scaled score
Information	9	7	Picture Completion	11	11
Comprehension	10	9	Picture Arrangement	27	11
Arithmetic	8	10	Block Design	26	13
Similarities	10	12	Object Assembly	22	11
Vocabulary	31	11	Coding (mazes)	23	7
Sum of Verbal Tests		55-46	Sum of Performance Tests		53

Verbal IQ	95
Performance IQ	104
Full Scale IQ	99

Medical Report (one year, one month after study began)

History of Present Problem. The patient has always been a very active youngster, even as a small baby, with a very short attention span since early infancy. He had difficulties, being hyperactive, and was placed in a nursery school at two years of age, at which time he was described as not wanting to share and wanting to be alone. Since three or four years of age, he has been rather quick-tempered. He has been having difficulty in school since he began, and has been in a special, ungraded room for the past two years.

Past History. The mother's pregnancy was uneventful. She sustained a "penicillin poisoning," with "blisters in her mouth," from a penicillin injection for a cold just two or three days before delivery. After five or six hours of labor, the patient was born full term, weighing 8 lbs., 15½ oz. No resuscitative difficulties were encountered. The patient was bottle-fed with no feeding difficulties. The mother states that she always had to wake up the patient to take the bottle. He had no difficulties in toilet training, although he had bedwetting problems until four years of age. His early neuromuscular development is described as being normal. He walked at one year of age. He has occasional fits of temper which are seemingly uncontrollable.

Family History. The family consists of the mother, age 31, a deputy sheriff; a sister, age 12; brothers, ages 5 and 6. The patient's parents have been separated for the past three years. A custody hearing is due in the near future. The mother has been seeing a great deal of a man who has two children, ages 16 and 17. These children have been living with the family of Case 7 for over a year. The 17-year-old son is described as mentally retarded. The patient's mother thought that having this boy in the home was good for both boys.

Physical Examination. The physical examination revealed an eleven-year-old Caucasian male whose general condition was good. Height, 158 cms.; weight, 44 kgs.; blood pressure, 94/68; pulse, 74; respiration, 20. General physical examination did not reveal any abnormalities.

Neuromuscular Examination. Examination revealed the patient to be right-handed. He was alert and cooperative, but his intellectual development appeared to be less than expected for his chronological age. Examination of the cranial nerves revealed them to be intact. The optic fundi were normal. Examination of the motor system revealed no evidence of spasticity, rigidity, or weakness. The myotatic reflexes were physiological and symmetrical. The abdominal and cremasteric reflexes were present. The plantar reflexes were flexor bilaterally. Sensory examination revealed no gross abnormalities to pain, touch, position sense, vibration, stereognosis, and two-point discrimination. The patient's coordination was good, and there was no evidence to suggest any cerebellar dysfunction. The patient's gait and speech were normal. The patient had some difficulty differentiating laterality and, with his eyes closed, could not indicate whether his right or left side was being stimulated. There is no evidence to suggest any tactile inattention. Rather, this insensitivity reflected some subtle manifestation of a cross-laterality. The remainder of the examination was not remarkable.

Laboratory Data. An electroencephalogram was obtained on October 19, 1959, using ten electrodes, with both a scalp-to-scalp and scalp-to-ear technique. There was a fairly rhythmical basic frequency of 10 cps appearing primarily over the posterior scalp leads. Some scattered 5- to 7-cps activity is present anteriorly. During the patient's drowsiness, the amount of 5- to 7-cps activity increases, and during his light sleep, symmetrical 14-cps sleep spindles appear anteriorly. At no time during the tracing are there any focal or paroxysmal abnormalities. Hyperventilation for three minutes and photic stimulation did not significantly alter the record. The record was interpreted as being normal, both awake and asleep, for the patient's chronological age.

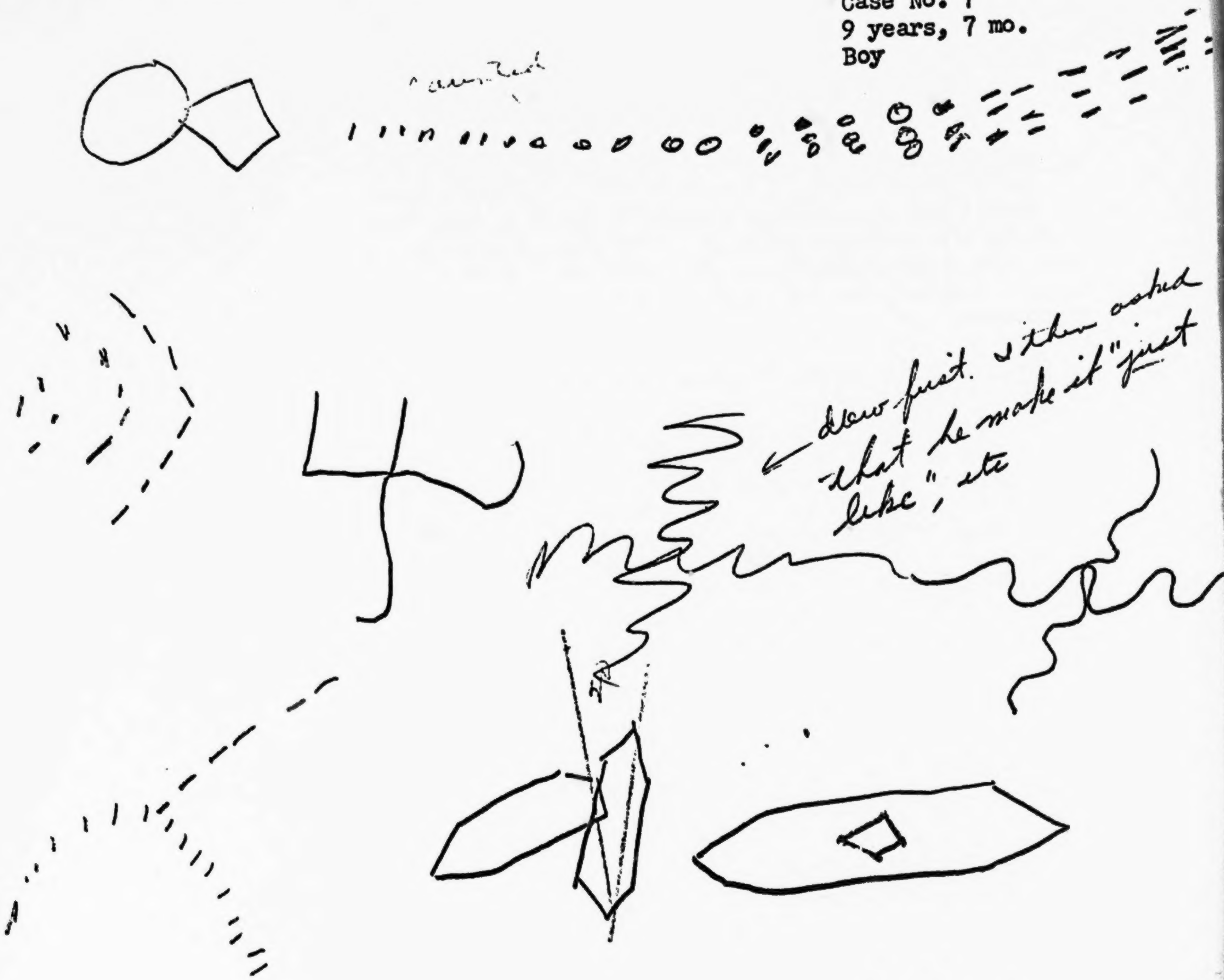
School Placement

Case 7 was placed in a special class with other boys of his grade who had learning and behavior problems. His days in the special class were stormy and uncertain. Continuation in the class was considered often on a day-to-day basis. However, he did continue in the class for two years and showed some improvement.

Follow-up (three years, three months after study began)

General improvement noted in the class and less trouble than ever before on the school grounds. He still has occasional outbursts of temper and profane language. He was a decided problem on the bus around the first of the year and was required to walk to school. The mother still does little to follow through with school recommendations, but he has been cleaner. The mother finally married her gentleman friend and they all moved across the street into his house. Mother plans to resign from the sheriff's department. Academically, this was the best year for Case 7. He will remain in the progress room one more year and then go on to high school. In spite of marked improvement, the prognosis is poor.

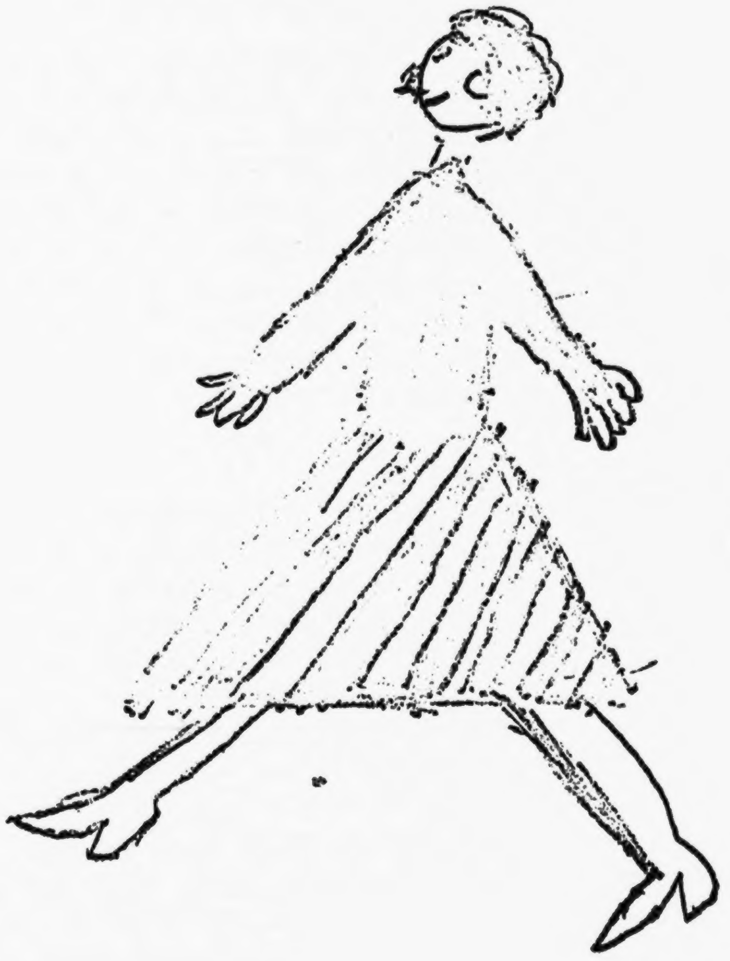
Case No. 7
9 years, 7 mo.
Boy



[illegible]

← drew first & then asked what he make it "just like", etc

Case No. 7
9 years, 7 mo.
Boy



Black sweater

Drew 2nd

Case 7

10/16/58 CA 10-5

CASE 8

Boy -- Thirteen Years, Seven Months

School Behavior

This boy's teachers find him happy, cheerful, and nice-appearing. While he likes to do things for the teacher, he is often not able to complete the job. His schoolwork has been marred by poor achievement from the very beginning. He claims to have finished his assignments, but when they are checked, he has done little. He is a boy with a good front, one which is acceptable and desired by adults, but one which is unacceptable to his peers. He often fights with them, avoids contact with them on other occasions, and would generally prefer to work alone. He has trouble concentrating on his schoolwork and needs a lot of individual attention and external pressure from the teacher in order to get finished. Most of his classroom time has been spent in avoiding the basic requirements set by the teacher.

His learning problems have to do basically with reading and arithmetic. While he has had difficulty in school from the very start, his oldest brother in college has been a model student and has always done well in school. The degree to which the obvious difference between the boys has contributed to Case 8's difficulties can only be guessed at, but there is no doubt that it has been a factor in his problems.

Test Results

Individual and group intelligence test results indicate that Case 8 has about average learning ability. On an individual intelligence test, his verbal learning was found to be significantly lower than his nonverbal ability, with a number of high and low scores. Such a pattern predicts uneven application of skills in schoolwork and reflects a lack of achievement in school. His achievement test results indicate approximately one grade retardation in arithmetic and reading.

Verbal	Raw score	Scaled score	Performance	Raw score	Scaled score
Information	12	7	Picture Completion	16	15
Comprehension	13	8	Picture Arrangement	31	10
Arithmetic	6	5	Block Design	30	11
Similarities	12	10	Object Assembly	25	11
Vocabulary	32	7	Coding (mazes)	41	9
(Digit Span)	10	10			
Sum of Verbal Tests	47-39		Sum of Performance Tests		56

	Scaled score	IQ
Verbal Scale	39	85
Performance Scale	56	108
Full Scale	93	96

Medical Report (one year, two months after study began)

History of Present Problem. Most of Case 8's difficulty has to do with reading and arithmetic. His behavior has been difficult at times, and he has been indifferent to school work. He has been attending a special class. He did not do well in his regular classes. At present he is apparently able to do seventh grade work. He has been less of a problem the last year or so but has had difficulties in school from the start. Case 8 is described by his parents as being the exact reverse of his brother, an honor student who has been attending college for the past year. The comparisons between him and his brother are unfortunate; one is impressed that he certainly is not the more favored of the boys.

Past History. The mother's pregnancies with both Case 8 and his brother were marked by some hyperemesis, but this condition was worse during her pregnancy with Case 8. She was in labor for about 11 hours. The patient weighed 7 lbs. at birth, and there were no neonatal difficulties. He was breast-fed until three months of age; no feeding difficulties were encountered. He has had measles, mumps, chicken pox, and pertussis without event. He has had no surgical procedures. His early neuromuscular development was thought to be within normal limits. Toilet training was accomplished in the first few years of life. The patient had enuresis almost nightly until two years ago. He bites his nails constantly.

Family History. The family consists of the father, age 47; mother, age 45; and a brother, age 18.

Physical Examination. Examination reveals a 13½-year-old Caucasian male whose general condition is good. Blood pressure is 90/60; respiration, 18; pulse, 72; height, 155 cms.; weight, 40.5 kgs. There were early prepubescent genital changes; he had no axillary hair. There were no other findings of interest.

Neurological Examination. Examination revealed the patient to be right-handed. He was alert and cooperative, and his intellectual development appeared to be that expected for his chronological age. Examination of the cranial nerves revealed them to be intact. The optic fundi were normal. Examination of the motor system revealed no evidence of spasticity, rigidity, or weakness. The myotatic reflexes were physiological and symmetrical throughout. The abdominal and cremasteric reflexes were present. The plantar reflexes were flexor bilaterally. The patient's coordination was good, and there was no evidence to suggest any cerebellar dysfunction. Sensory examination revealed no disturbance of function of pain, touch, position sense, vibration, stereognosis, or two-point discrimination. The patient's gait and speech were normal. The remainder of the examination was not remarkable.

Laboratory Data. An electroencephalogram was obtained on November 16, 1959, using ten electrodes with both a scalp-to-scalp and scalp-to-ear technique. During the early portion of the recording, there is a basic frequency of 5 to 7 cps, with a good deal of moderate potential 15- to 20-cps activity appearing anteriorly. During the patient's drowsiness, random slow 5- to 7-cps waves are present, with 10- to 12-cps sleep spindles and biparietal humps. At no time during the tracing are there any clear-cut focal or paroxysmal activation. Hyperventilation for three minutes and photic stimulation did not significantly alter the record. During the latter portion of the recording, the basic frequency was 9 to 10 cps. Impression: a normal electroencephalogram for the patient's chronological age both awake and asleep.

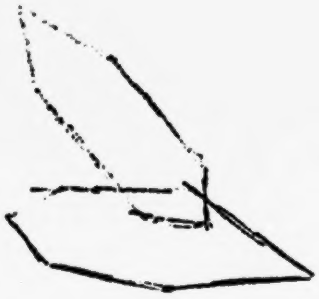
School Placement

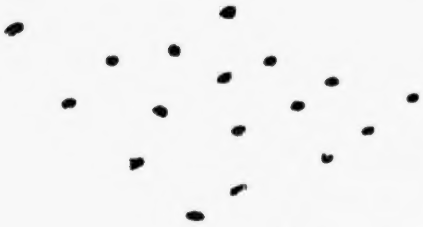
Case 8 was placed in a special class. In this class were 15 boys of sixth-, seventh-, and eighth-grade levels who were having difficulty with school behavior and learning. He attended this class regularly for two years. At the end of this period, his achievement was at grade level, and his behavior in school was generally improved.

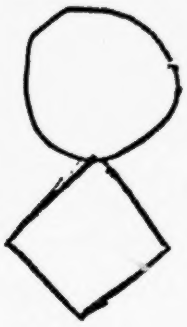
Follow-up (two years after study began)

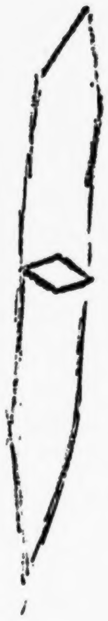
He was assigned to a regular school program after leaving the special class. Adjustment at the new school was uneventful. The other students did not like him, and he was very critical of them. His school work was weak, and he needed continual urging. His mother was cooperative but ineffective in her ability to handle him.

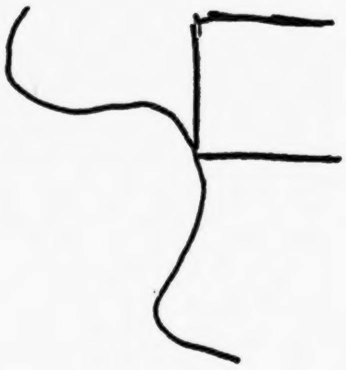
Case No. 8
12 years, 0 mo.
Boy

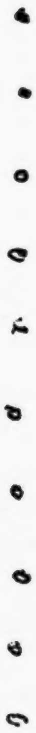


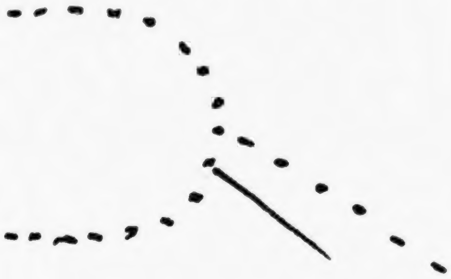


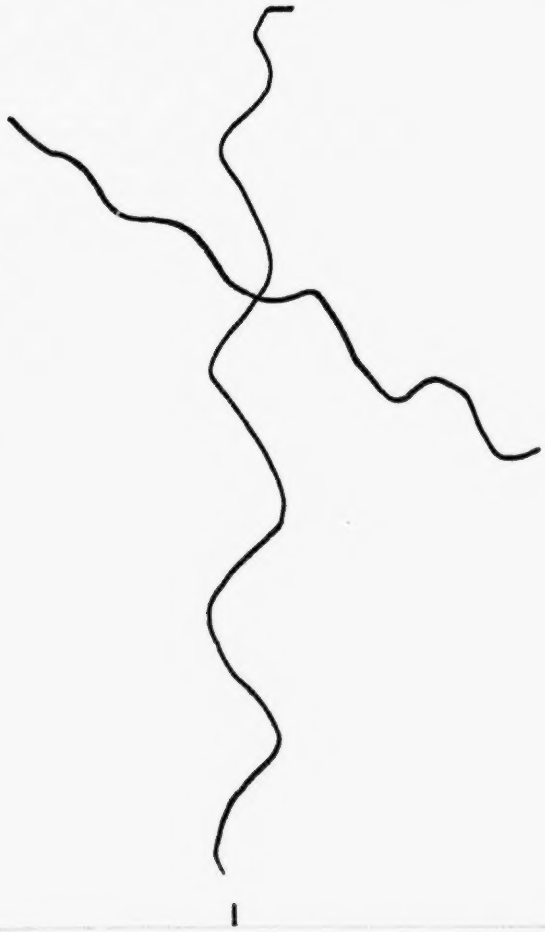


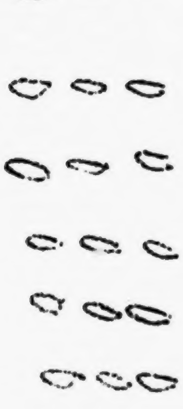








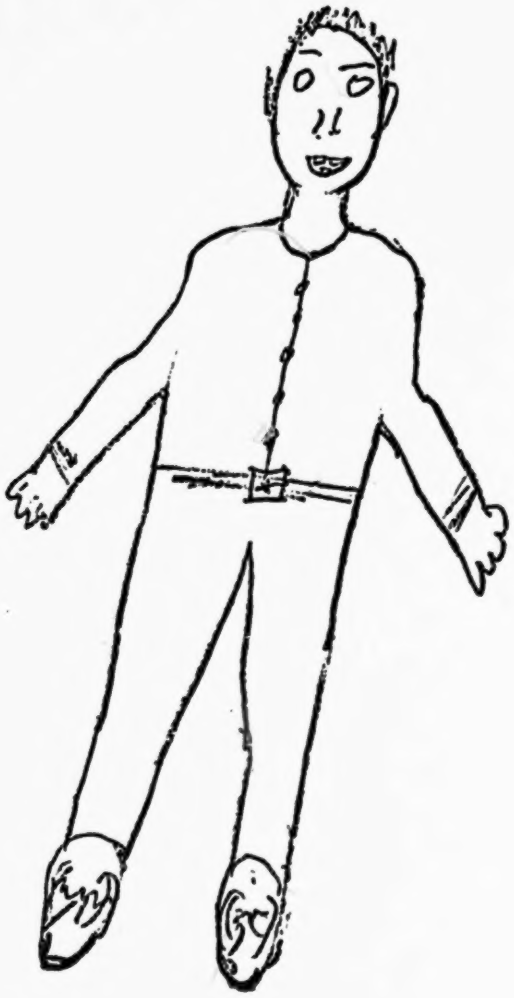




November 25, 1959

①

Case No. 8
12 years, 0 mo.
Boy



CASE 9

Boy -- Seven Years, One Month

School Behavior

This boy is described by his teacher as high-strung and nervous. He has a vivid imagination and tells weird and fantastic tales. On the other hand, he is an intelligent child and quick to learn. In kindergarten he was restless. A sister says that he is a bad boy at home and often gets punished. He has been observed as being apprehensive and preoccupied. He is difficult to understand because he has a noticeable speech problem. He is occasionally cheerful but more frequently has moments of gloominess and listlessness which appear inappropriate for the environmental situation.

Test Results

Intellectually, Case 9 is functioning within the average range of ability. His verbal learning abilities are lower than his nonverbal abilities. His test performance is difficult to interpret in the light of his handicapped speech and communication difficulties. No doubt a noted preoccupation with fantasies and hallucinations interferes with his performance on testing and school tasks.

Verbal	Raw score	Scaled score	Performance	Raw score	Scaled score
Information	5	8	Picture Completion	7	11
Comprehension	4	8	Picture Arrangement	4	9
Arithmetic	4	10	Block Design	6	12
Similarities	3	9	Object Assembly	8	9
Vocabulary	11	6	Coding (mazes)	25	11
Sum of Verbal Tests	41		Sum of Performance Tests	52	

Verbal IQ	41	88
Performance IQ	52	103
Full Scale IQ	92	95

Medical Report (ten months after study began)

History of Present Problem. The patient is described by the parents as being basically a very nervous child who is easily upset and has been since infancy. He is very distractable and, on occasion, becomes very hyperactive. He has great difficulty in establishing peer relationships. He has some articulatory speech defect and can be understood only with intense concentration. He is extremely jealous of his sister, who was born on August 1, 1953. She, too, is thought by the parents to be somewhat nervous. The parents feel that Case 9 has done better in school in the past year than previously.

Past History. The patient is the first child of the mother. Her pregnancy was marked by back pain and a weight loss of ten pounds. There was no hyperemesis. She was in the hospital for two or three days during the second month of pregnancy because of back pain, but the diagnosis as to the cause of this difficulty is uncertain. Subsequent to this, the pregnancy was uneventful. After 23 hours in labor, the full-term patient was born in normal, spontaneous delivery, weighing 5 lbs., 12 oz. There was some gas anesthesia but no resuscitative difficulties were encountered. There was no neonatal jaundice and no convulsion. The patient was bottle-fed and early development was thought to be normal. He sat at about six or seven months, walked at nine months, began to talk distinctly at three or four years. His speech pattern was somewhat immature, and the patient still has an impairment of speech so that he cannot be understood easily. He was toilet-trained between the ages of 12 months and 18 months. He had chicken pox at three years of age, and mumps at four -- both uneventful. He had enuresis almost nightly until May, 1959. He is in need of an immunization (booster dose) for diphtheria, pertussis, and tetanus.

Family History. The family consists of father, age 32, machine operator; mother, age 26, assembler in a factory; and sister, age 6, who is slightly nervous. On the maternal side of the family, there are several individuals who have a history of speech difficulties. An uncle and great-aunt on the maternal grandfather's side of the family had speech difficulties. The aunt had difficulty pronouncing many sounds. The uncle is said to have stuttered, and his speech, as a child, was very much like that of Case 9.

Physical Examination. Physical examination revealed a seven-year-old, right-handed, white male whose general condition was excellent. His overall state was good. There were no gross abnormalities. The general physical examination was not remarkable.

Neurological Examination. Examination revealed a right-handed, white male who was alert and cooperative throughout the examination. His overall development appeared to be as expected for his chronological age. His height was 114 cm.; weight, 20 kgms.; blood pressure, 110/70; respiration, 18; pulse, 76. The cranial nerves were examined in detail and found to be intact. The optic fundi were normal. Examination of the motor system revealed no evidence of spasticity or weakness. The myotatic reflexes were physiological and symmetrical. The abdominal and cremasteric reflexes were present. The plantar reflexes were flexor bilaterally. Sensory examination revealed no abnormalities. The patient's coordination was good, and there was no evidence to suggest any cerebellar dysfunction. The patient's gait was normal. The patient had an articulatory speech defect primarily reflecting an immature pattern of speech. The remainder of the examination was not remarkable.

Laboratory Data. An electroencephalogram was done on July 17, 1959, using ten electrodes, with both a scalp-to-scalp and scalp-to-ear technique. There was a fairly rhythmical basic frequency of 8 to 9 cps appearing primarily over the posterior scalp regions. During the patient's drowsiness, random, slow 5- to 7-cps waves are present with symmetrical 14-cps sleep spindles and biparietal humps. Hyperventilation for three minutes resulted in a slight increase in amplitude without paroxysmal activation. Photic stimulation at flash rates between 5 and 30 flashes per second did not significantly alter the record. Impression: normal EEG during both waking and sleeping states for the patient's chronological age.

School Placement

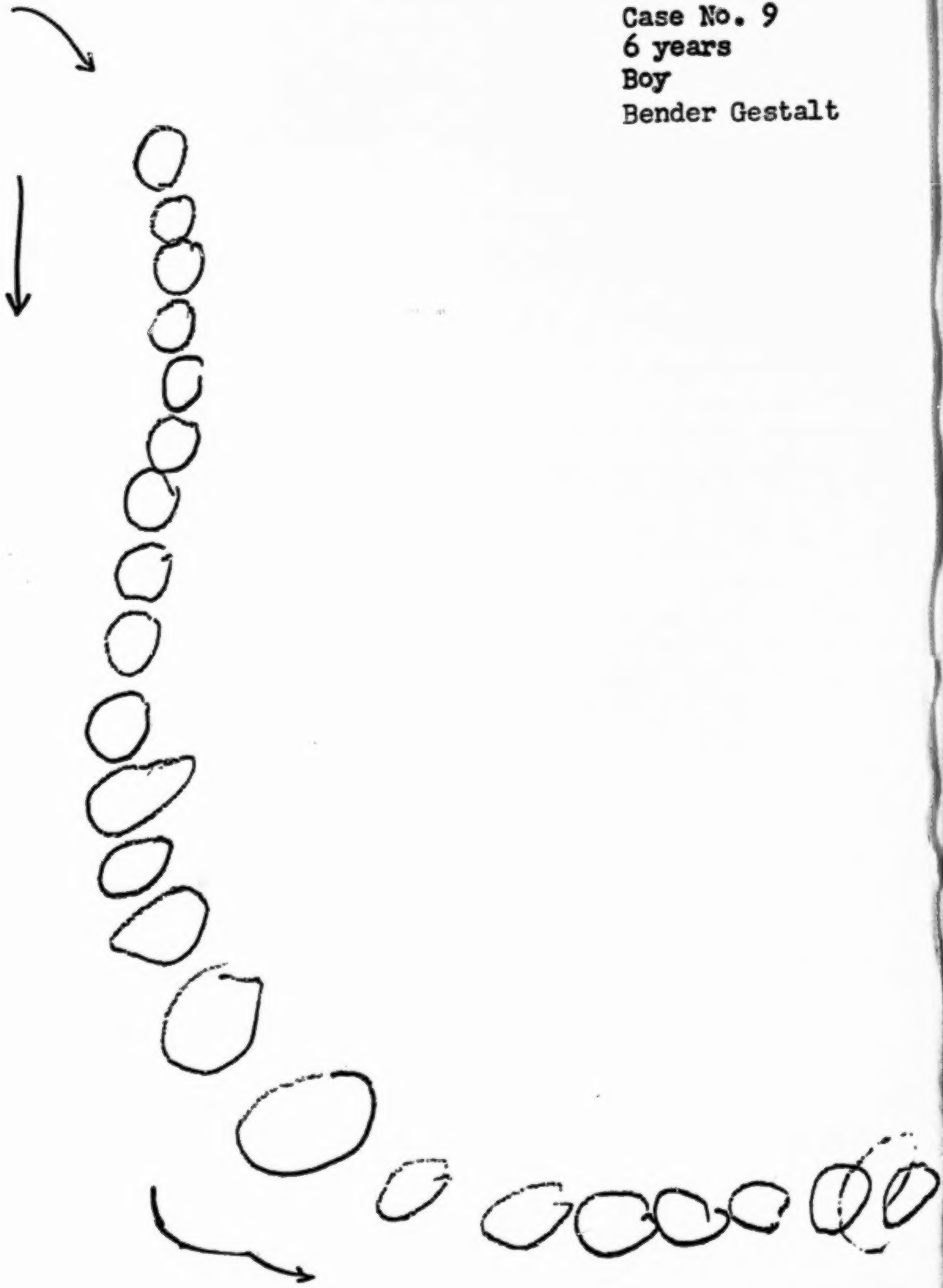
Case 9, along with some other children of his first grade, were scheduled once a week for a two-hour free play period. A trained teacher provided a permissive, nonthreatening group atmosphere which was a complete contrast to the demands of the regular school program.

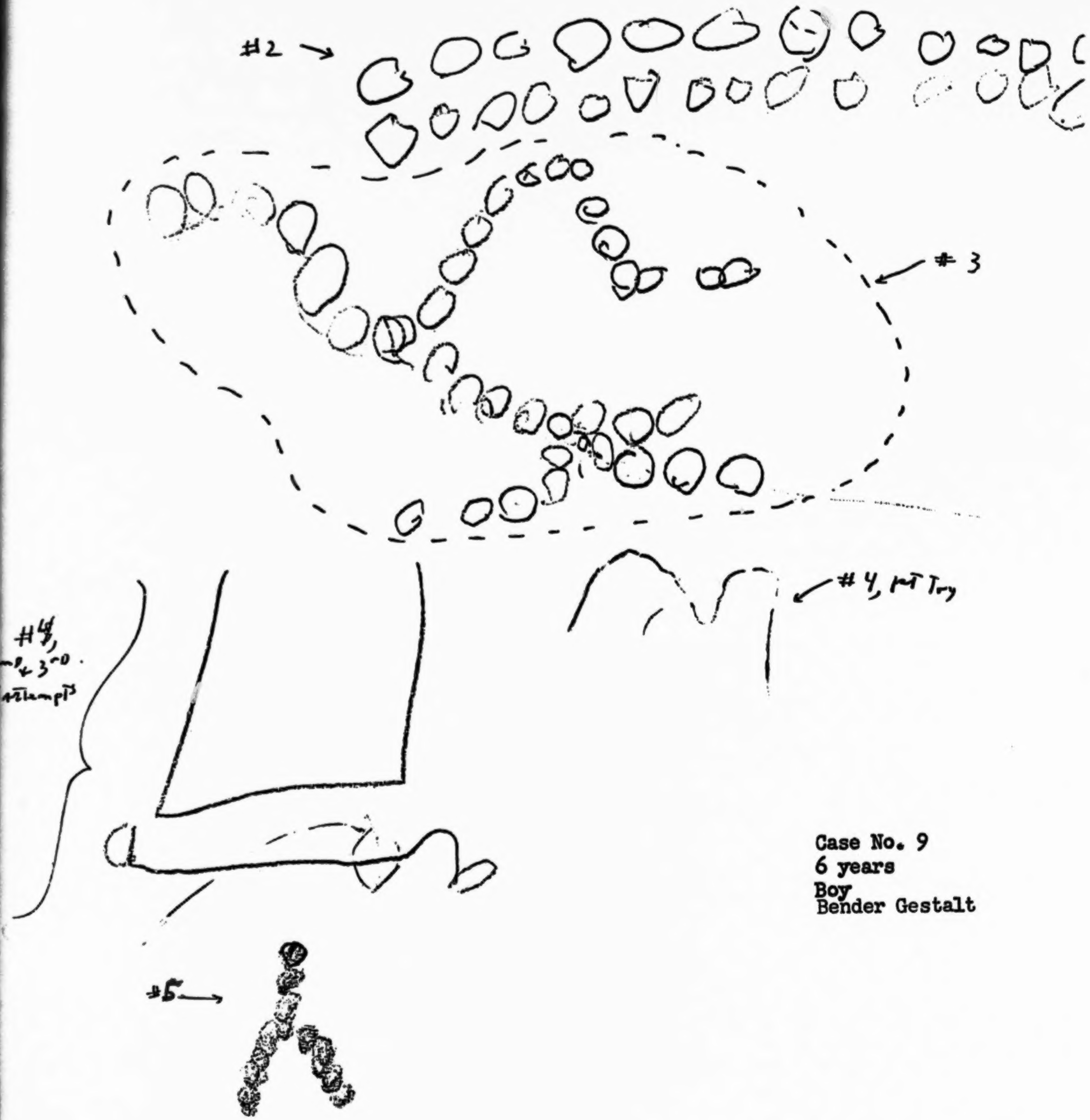
Follow-up (two years and two months after study began)

From the time of identification and school placement, Case 9 made little academic progress in his classroom work. He read at the easy third-grade level when he was in the third grade two years later. He could not keep up with third-grade arithmetic. His frustration level was low. If work was hard, he did not attempt it. He constantly talked out loud and sometimes read alout -- this apparently being the only way he could concentrate. His teacher felt he still had serious problems besides those recognized in school. By the end of the school year, he had been fairly quiet in class, but his work had not improved.

Case No. 9
6 years
Boy
Bender Gestalt

Figure 1

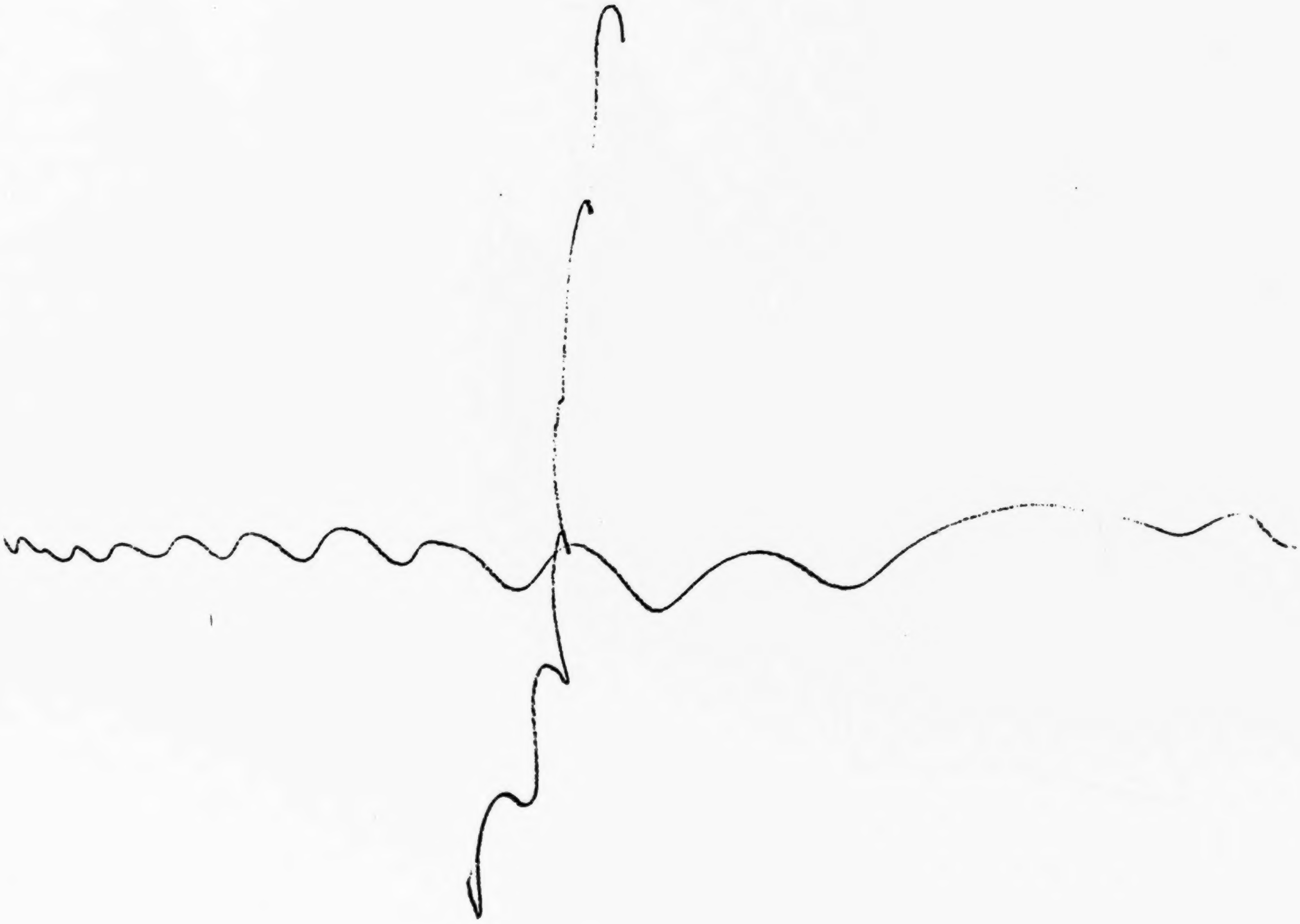




Case No. 9
6 years
Boy
Bender Gestalt

Case No. 9
6 years
Boy
Bender Gestalt

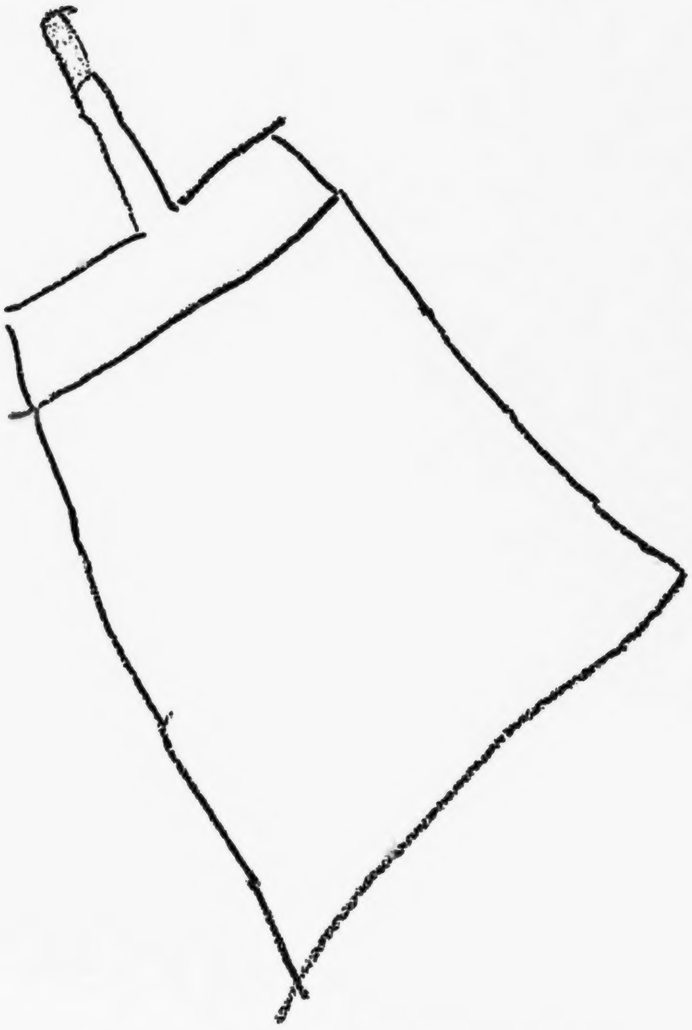
#6



Bender V-6

Case No. 9
6 years
Boy
Bender Gestalt

#7 →



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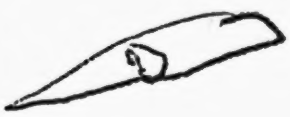


arry D.

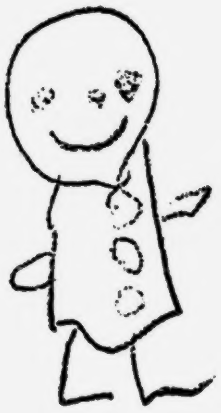
MAN: age 26

A workingman
Doesn't like to go home
Likes children
Best thing: go to the toilet
why: just wants to
worse thing: playing cards

Case No. 9
6 years
Boy
Draw a Person

Draw-A-Person

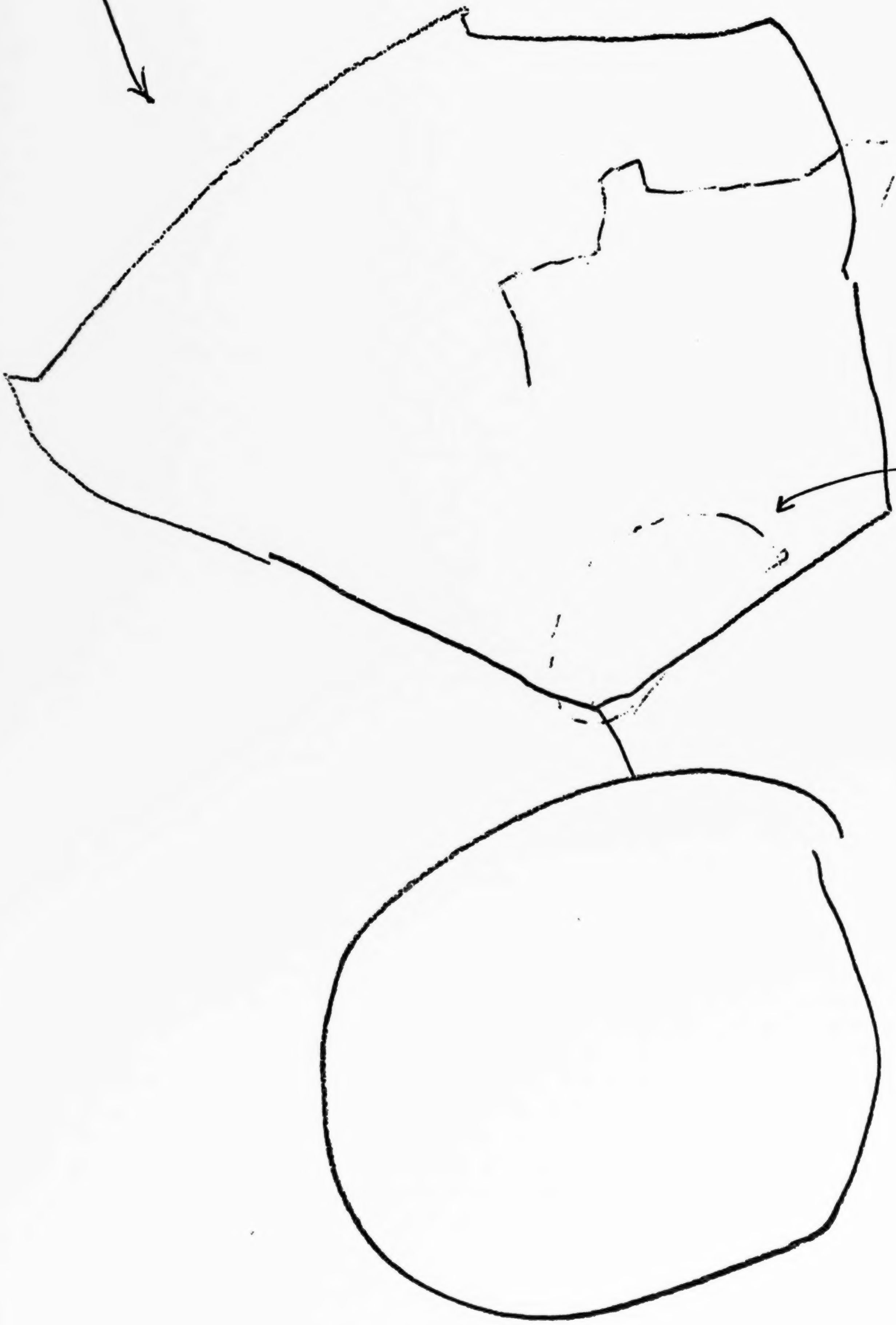
#1 - Man



Bender Visual-Gestalt

Case No. 9
6 years
Boy

Figure 'A', Third attempt



First Try

Second Try

CASE 10

Boy -- Sixteen Years, Six Months

School Behavior

Case 10 has a long history of school difficulties culminating in expulsion from school. He has not achieved well and often gets into fights or quarrels with other pupils. Out late at night with friends, he has had minor difficulties with the police for violation of curfew laws. He is unsure of himself and manifests this in hostile or eccentric behavior.

Test Results

An individually administered intelligence test indicates that he has above-average learning ability. His pattern of learning abilities is reasonably even, indicating, if one were to use solely the intelligence test predictions, that he should be able to achieve well in school. The contrary is the case. His achievement in reading and arithmetic is below average for his grade, and he is seriously deficient in arithmetic, getting one of the lowest scores in the school.

Verbal	Raw score	Scaled score
Information	20	10
Comprehension	20	13
Arithmetic	15	14
Similarities	17	12
Vocabulary	51	11
(Digit Span)	13	13
Sum of Verbal Tests		61

Performance	Raw score	Scaled score
Picture Completion	15	11
Picture Arrangement	40	12
Block Design	41	11
Object Assembly	24	9
Coding (mazes)	52	9
Sum of Performance Tests		52

	Scaled score	IQ
Verbal Scale	61	114
Performance	52	103
Full Scale	113	109

Medical Report (eleven months after study began)

History of Present Problem. The patient has a long history of behavioral difficulties. He is described by his parents as being a nonconformist, very inconsistent, and not doing the work expected of him at school. He has had some minor difficulties with the police, primarily because of disobedience of the curfew laws. He has been a student in the group counseling class in high school. He is physically well. He recently sustained a fracture of the right thumb, but this has mended adequately.

Laboratory Data. An electroencephalogram was done on August 10, 1959, using a scalp-to-scalp and scalp-to-ear technique. The basic frequencies were normal at various stages of the electroencephalographic recording. There were no paroxysmal discharges, nor were there any evidences to suggest focal abnormalities. Hyperventilation revealed no abnormality. The record was interpreted as being a normal electroencephalogram, both awake and asleep, for the patient's age.

Diagnosis. The clinical manifestations reflect an emotional disturbance. There is no evidence to suggest any organic disorder of the central nervous system on the basis of a clinical neurological examination or electroencephalographic examination.

School Placement

Case 10 was enrolled for one year in a group counseling class with other boys of his grade who were also having learning and behavior problems. The activities in the special class were focused on administering and interpreting aptitude tests, discussing school problems and study habits, and providing information about vocational placement and other matters of common interest to the boys.

Follow-up (two years and three months after study began)

Case 10 left school March 11, 1959, to go to work after failing required English and elective art. He returned to school in September, 1959, upon the request of his parents. He carried only five subjects, earning a D in two electives. His lack of interest was obvious; his tardiness was the worst in school. He failed the tenth grade social sciences requirement.

In January, 1960, he entered a junior college for the spring semester. His grades were Fs. He dropped out (no official withdrawal) to enlist in the U.S. Navy with the intention of getting training in baking. He was honorably discharged but under questionable circumstances. He had graduated previously from "boot camp," having been recruit petty officer and squad leader. He then was able to qualify for further schooling but was discharged before he completed the work.

He married the daughter of a wealthy rancher whom he met in the summer of 1961; she also was an adopted child. He is living in northern California and his mother reports that he enjoys hunting, fishing, and horseback riding. He has no significant employment history beyond one part-time job with a market as a box boy for about four months. He worked in the summer of 1961 in Lassen Volcanic National Park; he is now employed as mechanic's helper with a bottling company and has prospects for a routeman's position.

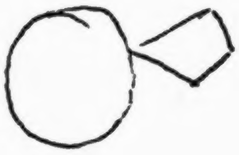
Past History. The patient was adopted at four weeks of age. The adoptive parents are unaware of the details of the mother's pregnancy. The patient had some feeding difficulty as an infant. At the age of five months, he was placed in a nursing home for two and a half months while the mother was hospitalized. He was toilet-trained at two and a half years, but has had enuresis regularly, averaging once or twice a week. At the age of three and a half years, the patient had a fever of 105 degrees and was said to be delirious for one and a half days; the cause of the fever is not known. His tonsils and adenoids were removed. At the age of four and a half, he fell and struck his head but sustained no serious injuries. At seven years of age he had a fever of 105 degrees for several days. This illness was diagnosed as infectious mononucleosis. He sustained a fracture of his clavicle and right leg. At eleven years, because of various behavioral difficulties, an electroencephalogram was done. The parents were told that there was a slight abnormality over the right side of the brain. He was given medication consisting of Dexedrine, and this calmed him down for some time. He had measles and chicken pox, both uneventful. At thirteen years the patient was just about dry at night, having only a rare occasion of enuresis; however, he was accidentally hit on the forehead and the enuresis started again immediately. In 1958 he was accidentally thrown from a truck and sustained some transient loss of consciousness. The patient is an only child.

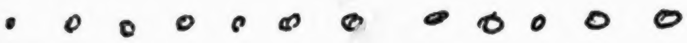
Family History. The family consists of the father, a photographer, and the mother. The mother has a history of emotional difficulties and has had psychiatric care for some years. The parents recognize that there has been a distinct and considerable rejection of the patient by the paternal grandparents since the time of his adoption which is inconsistent with the grandparents' attitude toward their other grandchildren.

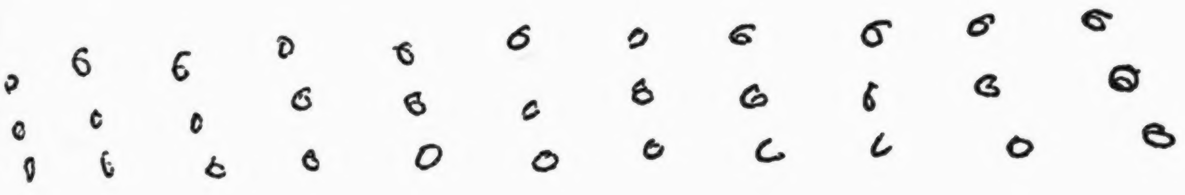
Physical Examination. Examination revealed a 16½-year-old, right-handed, white male whose general condition is excellent. His height is 185.5 cms.; weight, 83.7 kgs.; blood pressure, 100/70; pulse, 72. General physical examination reveals no abnormalities. The genitalia are pubertally enlarged; there is axillary and pubic hair.

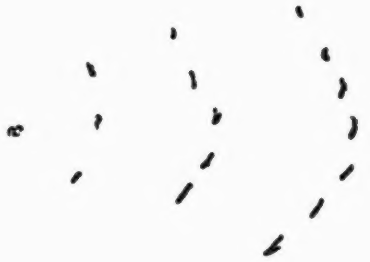
Neurological Examination. Examination reveals the patient to be right-handed. He is alert and cooperative, and his intellectual development appears to be that expected for his chronological age. The cranial nerves were examined in detail and found to be intact; the optic fundi were normal. Examination of the motor system revealed no evidence of spasticity or weakness. The myotatic reflexes were physiological and symmetrical throughout. The abdominal and cremasteric reflexes were present; the plantar reflexes were flexor bilaterally. Sensory examination revealed no gross abnormalities. The patient's coordination was excellent, and there was no indication to suggest any cerebellar disturbance. The patient's gait and speech were normal.

Case No. 10
15 years, 3 mo.
Boy









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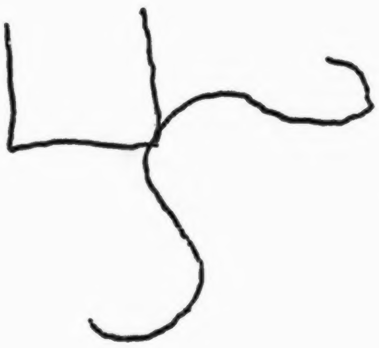

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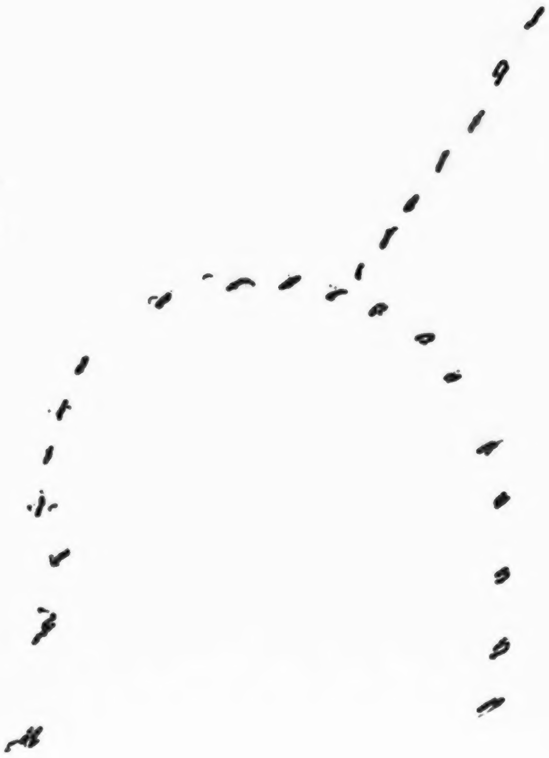

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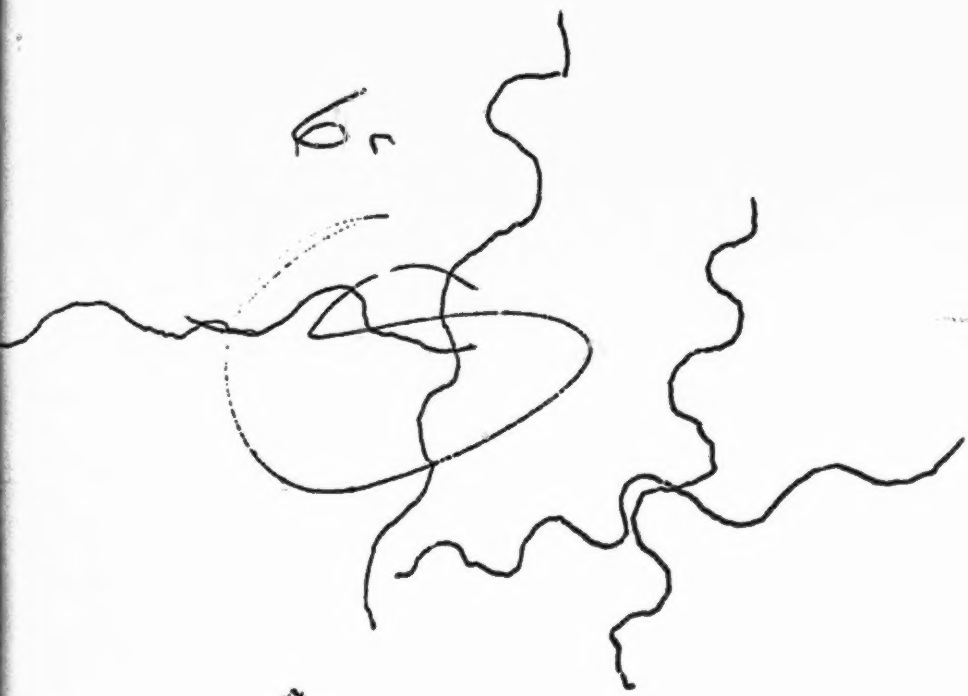

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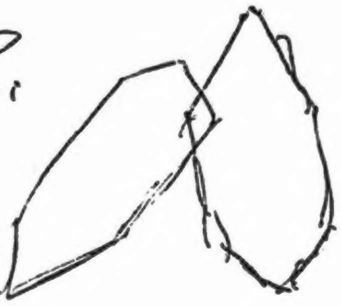

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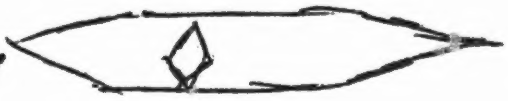
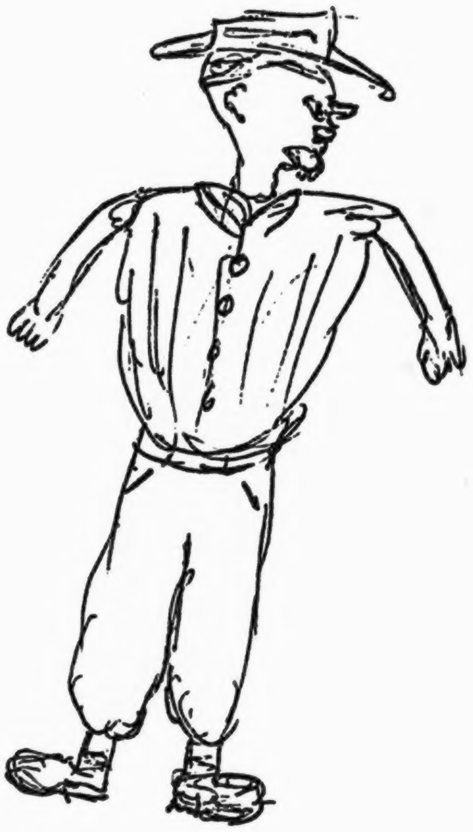


Case No. 10
15 years, 3 mo.
Boy



CASE 11

Boy -- Thirteen Years, Four Months

School Behavior

Case 11 is a grossly disturbed boy. He is withdrawn, does not make friends easily, and is unable to participate in a group of his peers. Besides having considerable behavioral difficulty, his achievement in school has been poor and he is repeating the seventh grade. He is tense, bites his fingernails, and is difficult to communicate with. He seems to be turned in on himself.

Test Results

No group-administered intelligence test data were available. However, individual intelligence test results indicate a boy of slow learning ability with a fairly even pattern of abilities. However, he functions at a higher level in school; he learns tasks which causes one to question the relationship between his measured intelligence and his real ability to perform schoolwork. His latest achievement test scores indicate about one grade retardation in both reading and arithmetic.

Verbal	Raw score	Scaled score
Information	10	7
Comprehension	12	9
Arithmetic	7	6
Similarities	7	7
Vocabulary	31	8
(Digit Span)	8	7
Sum of Verbal Tests	44-37	

Performance	Raw score	Scaled score
Picture Completion	8	6
Picture Arrangement	20	6
Block Design	6	5
Object Assembly	22	9
Coding (mazes)	34	8
Sum of Performance Tests		34

	Scaled score	IQ
Verbal Scale	37	84
Performance Scale	34	78
Full Scale	71	79

Medical Report (one year, two months after study began)

History of Present Problem. The patient is described by the father as having most of his difficulties in the area of deportment. He is a tense, hard-to manage, withdrawn youngster who does not make friends easily. He does not seem to be able to play with others of his age. He also had considerable difficulty in school. He is also enrolled in a special class.

Past History. The patient was born following his father's second marriage. His mother left the boy and his father when the boy was three years of age.

Family History. The family consists of the father; the father's wife of recent marriage; a brother, age 11; and a foster brother, 18, born of the father's first marriage. The family presently lives at the rear of the paternal grandmother's home. The patient's behavior has improved somewhat since this time.

Physical Examination. The physical examination revealed the patient's general condition to be good. His height was 152 cms.; weight, 47.4 kgs.; blood pressure, 90/60; pulse, 72; respiration, 18. The general physical examination revealed some early prepubescent changes. There were no other remarkable findings.

Neurological Examination. The neurological examination revealed the patient to be right-handed. He seemed to be alert and cooperative during the examination, and his intelligence appeared to be that expected for his chronological age. He was quite tense; his fingernails showed evidence of being bitten frequently. Examination of the cranial nerves revealed them to be intact. The optic fundi were normal. Examination of the motor system revealed no evidence of spasticity, rigidity, or weakness. The myotatic reflexes were physiological and symmetrical throughout. The abdominal and cremasteric reflexes were present. The plantar reflexes were flexor bilaterally. The patient's coordination was good, and there was no evidence to suggest any cerebellar dysfunction. Sensory examination revealed no abnormalities to pain, touch, position sense, vibration, stereognosis, or two-point discrimination. The patient's gait and speech were normal. The remainder of the examination was not remarkable.

Laboratory Data. An electroencephalogram was obtained on November 16, 1959, using ten electrodes, with both scalp-to-scalp and scalp-to-ear technique. A portion of the recording was obtained during the patient's light sedated sleep. There is a fairly rhythmical basic frequency of 9 to 10 cps appearing in all leads although most prominent over the posterior scalp regions. Some occasional 5- to 7-cps activity appears anteriorly. During drowsiness, the amount of 5- to 7-cps activity increases with biparietal humps and 14-cps sleep spindles. Hyperventilation and and photic stimulation did not significantly alter the record. The record is interpreted as being normal, both awake and asleep, for the patient's chronological age.

School Placement

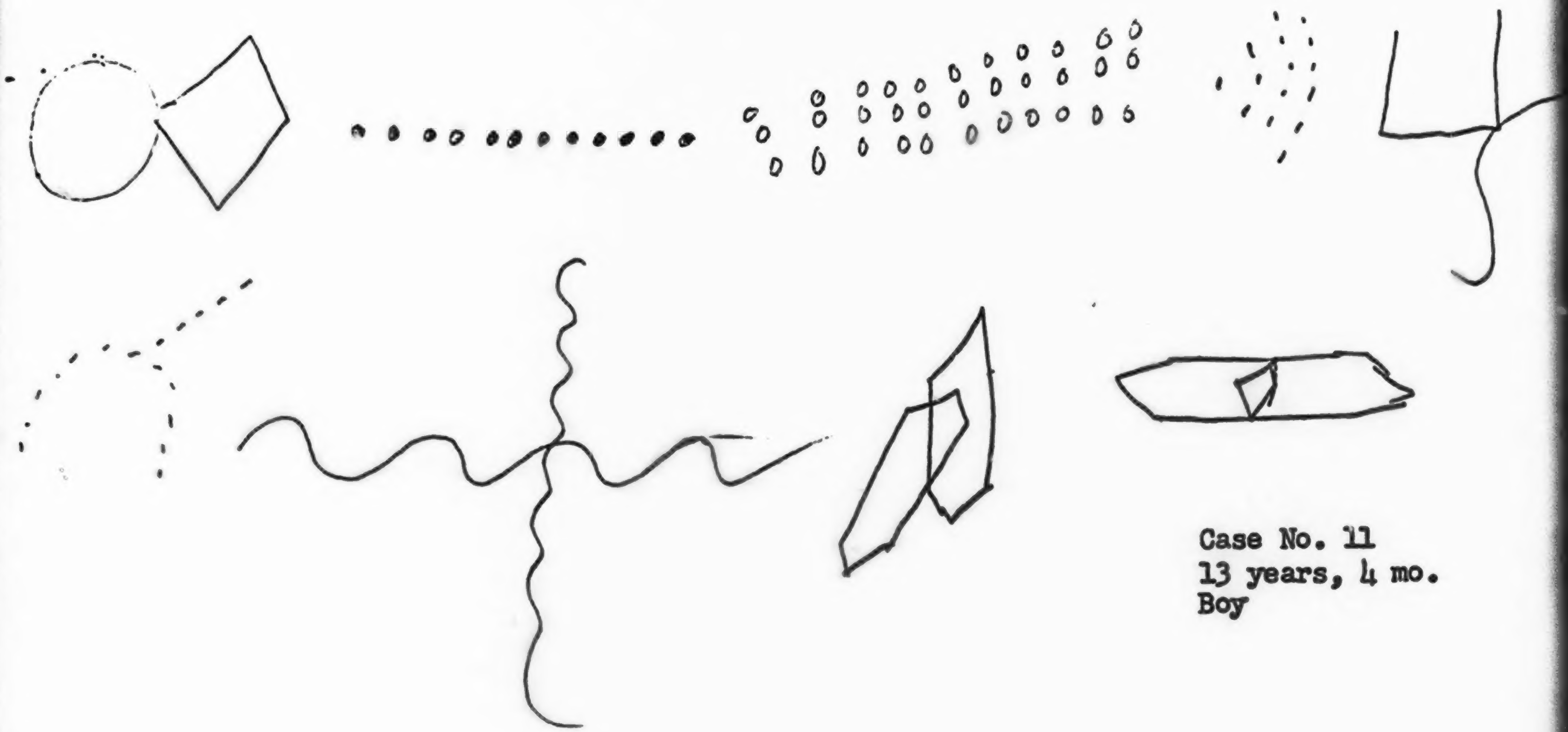
Case 11 was placed in a special class composed of boys with a variety of learning and behavior difficulties.

Follow-up (two years, two months after study began)

Case 11 left the progress room in February, 1960, to attend a military academy. He had been extremely difficult, and his father had been pressured to place him. None of the earlier recommendations by the school had been followed by his father. The new stepmother, who hoped to bring about a change in both Case 11 and the father, had an emotional collapse resulting from the family problems and insisted that Case 11 board away from home (January, 1960).

In September, 1960, the father asked for him to be reenrolled in the special class since he could not afford private placement. This was not allowed. He did return to school in the eighth grade on trial. His behavior was very difficult--incessant talking, vulgar behavior at the lunch table, calling girls on the phone, defiance in the classroom, and the like.

On October 12, 1960, he staged an accident with his bicycle. He rode off an embankment into the wash. The police and ambulance came. He was not hurt although he said he was. During a conference with the father, a psychiatric evaluation was recommended for Case 11. The father agreed, but the boy later told the teacher at school that his father had no intention of doing anything. About a week after the "accident," he brought a satchel to school. The contents included six hypodermic needles and 48 samples of various drugs. The school doctor examined them and the police were notified. On October 27, 1960, Case 11 enrolled at a boys' home. He wrote a letter to his former teacher asking to be remembered to everyone.



Case No. 11
13 years, 4 mo.
Boy

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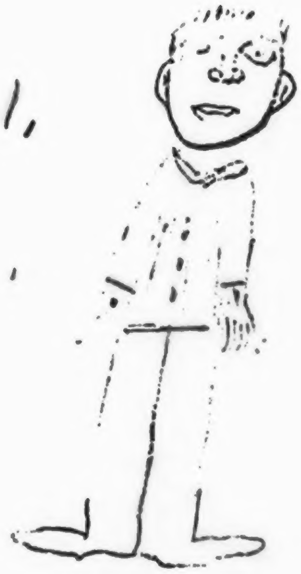


Case No. 11
13 years, 4 mo.
Boy

C A 13-4

CASE 12

Boy -- Ten Years, Four Months

School Behavior

Case 12 has a noticeable speech defect. He gives the impression of being retarded. His parents state that he is sensitive, quick-tempered, easily frustrated, and hurt. He has nightmares, and his brother teases him for bedwetting. His teacher reports that he gets along nicely with the boys in his class and admires and talks often of his brother. It is hard for him to express himself. His mother is hard of hearing and is unable to understand him. He has poor motor control, which has been interpreted as being a sign of anxiety and tension. A low frustration tolerance makes him vulnerable to aggressive flare-ups, screaming, and yelling, especially when things do not go his way.

Test Results

An individual intelligence test indicates low average mental ability. His achievement is extremely poor, and he has been recommended for remedial reading help.

Verbal	Raw score	Scaled score	Performance	Raw score	Scaled score
Information	9	7	Picture Completion	11	12
Comprehension	9	9	Picture Arrangement	28	12
Arithmetic	7	9	Block Design	10	9
Similarities	3	5	Object Assembly	25	9
Vocabulary	21	7			
Sum of Verbal Tests		37	Sum of Performance Tests		42

Verbal Scale	37	84
Performance Scale	53	104
Full Scale	90	93

Medical Report (eleven months after study began)

History of Present Problem. The history reveals that the patient's primary difficulties have been those of keeping up at school. He has been in the fourth grade this fall and repeated the third grade last year. He is probably not ready for the fourth grade at this time. The parents state that the patient has always had a problem in learning. He seems to have poor retention and, in addition, is a poor reader and a poor speller. When he began school in the first grade, a "poor teacher" advised that he be retained there for another year. When he was in the third grade at school, a Negro teacher commented that she could not understand him very well. He subsequently had psychological studies, primarily because of his speech difficulties. He was told after that evaluation that psychiatric care was necessary. The patient has had no major problems of acting out behavior.

Past History. The mother's pregnancy was uneventful. She was in labor for about two hours. The patient was a full-term, normal delivery weighing 8 lbs., 8 oz. There was no resuscitative difficulty. The patient was fed with bottle feedings, and no difficulties were encountered. He had measles at five years of age and mumps at eight. His tonsils and adenoids were removed at six years of age. The patient's development was thought to be somewhat slow. His parents revealed that the patient stayed longer in a baby stage than his three siblings. He was toilet-trained at two years of age; however, he continues to have enuresis nightly. The parents feel that he is an extremely tense child. He has frequent nightmares and has a very restless sleep. He also talks in his sleep rather frequently. The patient is described as "flies off the handle" and screams and yells with the slightest provocation or when things do not go his way.

Family History. The family consists of the father, 45 years old; mother, 42 years old; brother, 18 years old; sister, 17 years old; and a brother, 13 years old, who is an honor student. Of interest is that a paternal uncle had a similar speech defect but was reported as "outgrowing it."

Physical Examination. Examination reveals a ten-year-old Caucasian male whose general condition appears to be good. His height was 143 cms.; weight, 31 kgs.; blood pressure, 90/60; respiration, 18; pulse, 72. The general physical examination was not remarkable.

Neurological Examination. Examination revealed the patient to be right-handed. He was alert and cooperative, but his intellectual development appeared to be slightly retarded for that expected for his chronological age. He had a mild articulatory speech defect primarily reflecting an immature speech pattern. The cranial nerves were examined in detail and found to be intact. The optic fundi were normal. Examination of the motor system revealed no evidence spascticity, rigidity, or weakness. The myotatic reflexes were physiological and symmetrical. The abdominal and cremasteric reflexes were present. The plantar reflexes were flexor bilaterally. The patient's coordination was good, and there was no evidence to suggest any cerebellar dysfunction. Sensory examination revealed no evidence of impairment to pain, touch, position sense, vibration, stereognosis, and two-point discrimination. The patient's gait was normal. The remainder of the examination was not remarkable.

Laboratory Data. An electroencephalogram was done on July 31, 1959, using ten electrodes, with both scalp-to-scalp and scalp-to-ear techniques. A portion of the recording was obtained during light sedated sleep. During the waking phase there is a fairly rhythmical basic frequency of 9 to 10 cps appearing primarily over the posterior scalp regions. Some occasional 15 to 20 cps is present anteriorly. During drowsiness, random, slow 5- to 7-cps waves are present with fairly symmetical 14-cps sleep spindles appearing anteriorly. During the phase of drowsiness and light sleep, some repetitive 6- to 14-cps positive spikes appear over the posterior scalp regions. Hyperventilation and photic stimulation did not significantly alter the record. The record was interpreted as being normal with repetitive 14- and 6-cps positive spikes during drowsiness and light sleep.

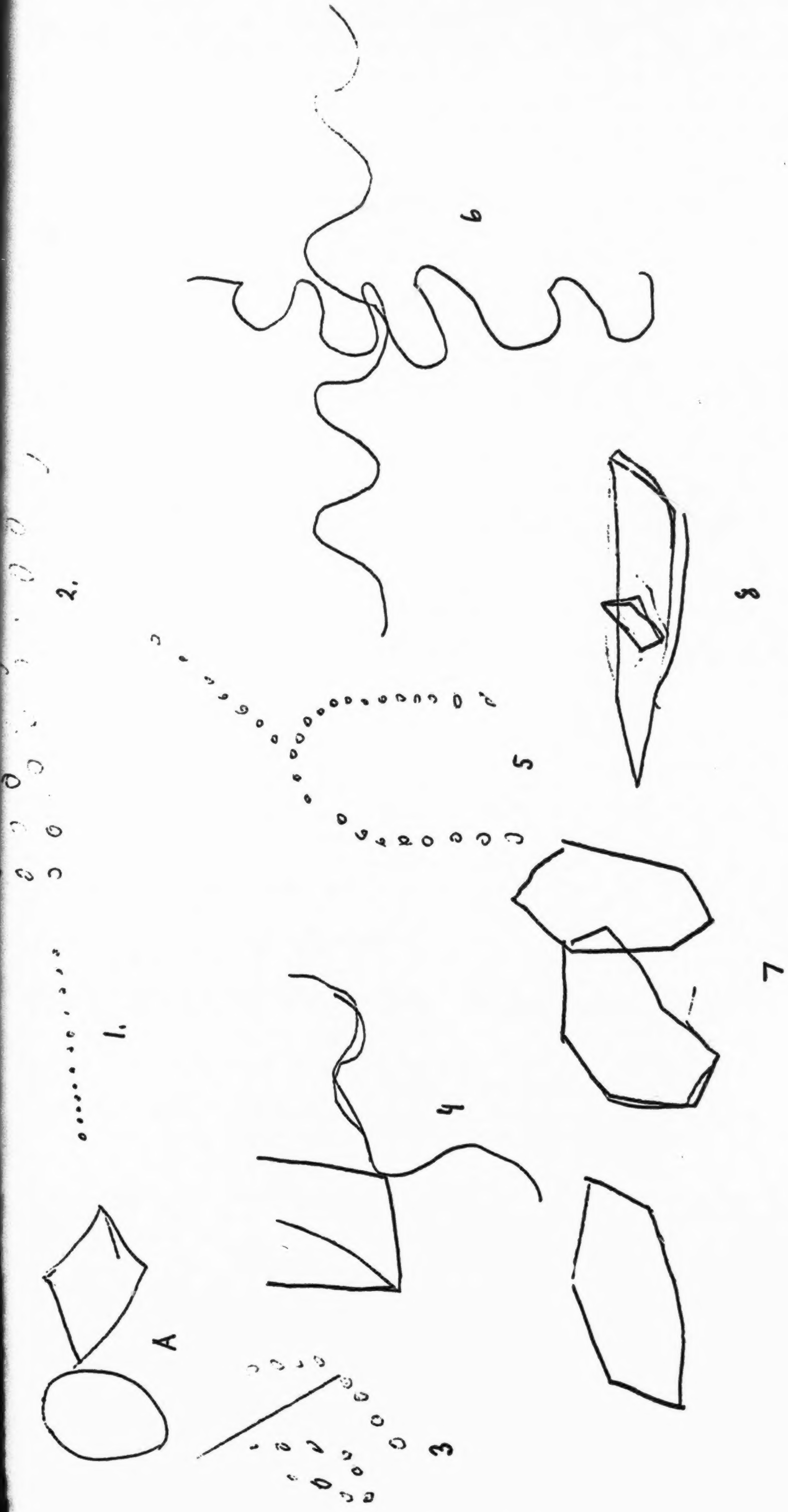
School Placement

Case 12 was placed in a remedial reading class from September, 1958, through June, 1960. He made better than two years gain in achievement during this time. He responded well to help, and increased maturity was noted.

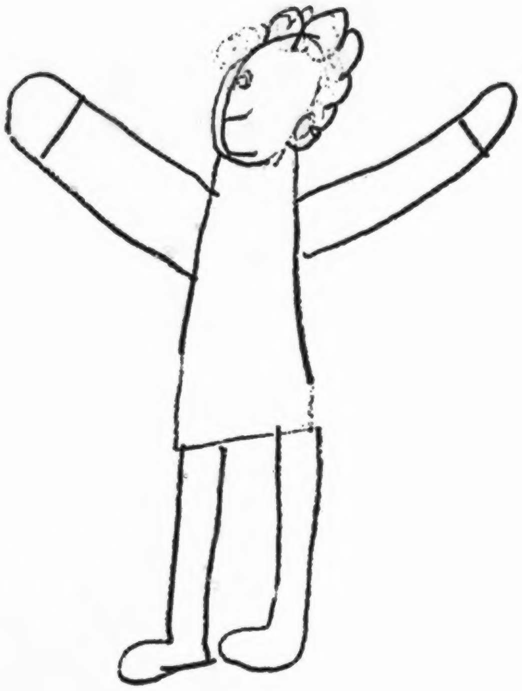
Follow-up (two years, four months after study began)

Speech problems and enuresis continue. He seems to be better liked in school, but his inability to communicate with others makes life difficult for him. Shortly after the beginning of the school year, he moved from this district.

Case No. 12
9 years. 0 mo.
Boy



Case No. 12
9 years, 0 mo.
Boy



Susie
8 years old
She is raising
up her hands.
She wants to become a nurse.

CASE 13

Boy -- Eleven Years, One Month

School Behavior

This boy's teachers report him to be a slow learner. He behaves in an infantile fashion, but he is not particularly a behavior problem. He puts forth little effort in a regular class. He likes to show off and gets attention in whatever way possible. He competes with his twin brother and is anxious not to fall behind him. Case 13 gives up easily and is prone to ask for extra assistance. He feels little understanding from his parents and is upset by their relationship to him and to each other.

Test Results

Individual intelligence examinations place Case 13 in a low average ability range. His achievement is not consistent with his ability expectation, and he is working below his grade.

Verbal	Raw score	Scaled score
Information	7	6
Comprehension	12	13
Arithmetic	7	10
Similarities	4	7
Vocabulary	28	11
(Digit Span)	7	7
Sum of Verbal Tests	54	

Performance	Raw score	Scaled score
Picture Completion	11	13
Picture Arrangement	20	9
Block Design	6	8
Object Assembly	16	9
Coding	24	9
(Mazes)	11	8
Sum of Performance Tests	56-47	

	Scaled score	IQ
Verbal Scale	45	94
Performance Scale	47	96
Full Scale	92	94

Medical Report (one year, two months after study began)

History of Present Problem. The patient apparently has been attending a special class in school along with ten other boys. He has been in this class for approximately two years, primarily because he is a slow reader. He is doing sixth grade work and is apparently making reasonably good progress. No behavioral difficulties, at least in the area of acting-out, has been observed.

Past History. The patient is the second of fraternal twins. The mother's pregnancy during this time was thought to be all right, but labor began about six weeks prematurely. The patient's older twin weighed 5½ lbs. at birth, and the patient weighed 5 lbs. at birth. Labor was rather short. No neonatal difficulties were encountered, but the twins were kept in "heat boxes" for about three weeks. There are two other children in the family, a girl 7 years old and a boy 14 years old. The patient's early development was thought to be normal. He walked at 14 months of age, ran at 17 months of age, and talked distinctly at three years of age. He has had difficulty in school since the beginning. He was toilet-trained at two and a half years. No enuresis is observed. He is thought to have a rather short attention span. The patient had measles at seven years of age and chicken pox at five years of age, both without event. His twin brother is apparently doing fairly well in school.

Physical Examination. Examination reveals an 11-year-old Caucasian male whose general condition appears to be good. There are no signs of prepubescence. Height, 140.5 cms.; weight, 30 kgs.; blood pressure, 92/62; respiration, 18; pulse, 74. The general physical examination was not remarkable.

Neurological Examination. Examination revealed the patient to be right-handed. He was alert and cooperative, and his intelligence appeared to be that expected for his chronological age. Examination of the cranial nerves revealed them to be intact. The optic fundi were normal. Examination of the motor system revealed no evidence of spasticity, rigidity, or weakness. The myotatic reflexes were physiological and symmetrical throughout. The abdominal and cremasteric reflexes were present. The plantar reflexes were flexor bilaterally. Sensory examination revealed no abnormalities to pain, touch, position sense, vibration, stereognosis, or two-point discrimination. The patient's gait and speech were normal. The remainder of the examination was not remarkable.

Laboratory Data. An electroencephalogram was done on November 2, 1959, using ten electrodes, with both a scalp-to-scalp and scalp-to-ear technique. A portion of the recording was obtained during the patient's light sedated sleep. While he is awake, there is a fairly rhythmical basic frequency of 8 to 9 cps, with some scattered, irregular, moderate, potential 5- to 7-cps activity appearing in all leads. At no time during the tracing are there any focal or paroxysmal abnormalities. During drowsiness, the amount of 5- to 7-cps activity increases, and there are symmetrical biparietal humps and 14-cps sleep spindles. Hyperventilation and photic stimulation did not significantly alter the record. The record was interpreted as being an essentially normal electroencephalogram, both awake and asleep, for the patient's chronological age. Comment: the amount of 5- to 7-cps activity during the waking state approaches the lower limits of normal for this age.

Summary and Impression. The clinical manifestations reflect primarily an emotional disturbance. The etiology of these difficulties is not apparent. A careful clinical neurological examination did not reveal any abnormalities. The electroencephalographic examination was essentially normal for the patient's chronological age, in spite of the amount of 5- to 7-cps activity during the waking state which approached the lower limits of normal. In summary, we did not feel that there is any clinical or electroencephalographic evidence to indicate any organic disease of the central nervous system.

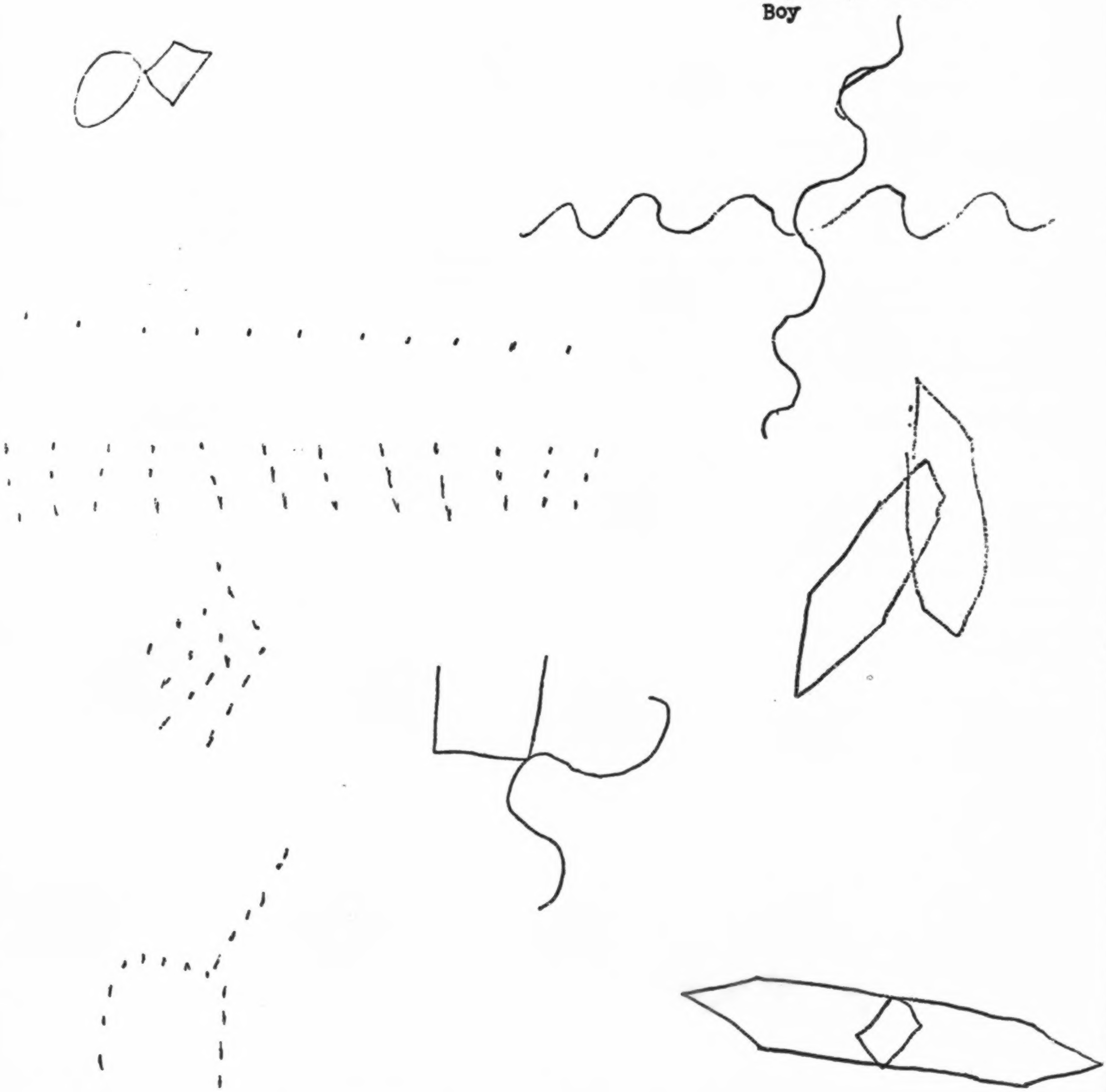
School Placement

Special class placement was recommended and provided for Case 13. The class was oriented to improvement in school learning and emphasis was placed on setting and assisting the pupils to maintain behavior standards appropriate to their age and grade. He made some gains in the special class, but his improvement was below the average for the other pupils placed there. Provision for continued help was needed.

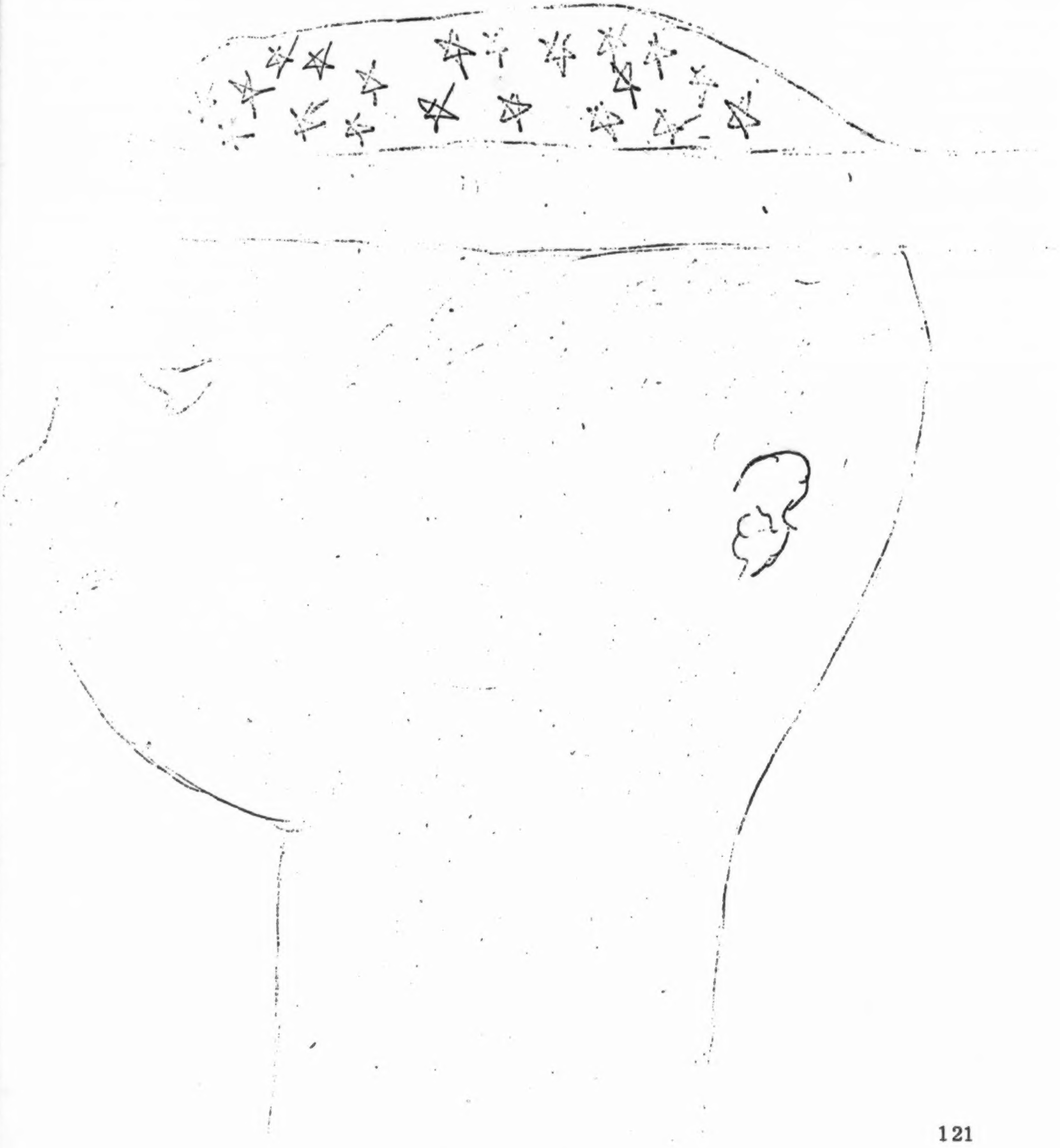
Follow-up (two years, six months after study began)

Case 13 returned to a regular class in September, 1960. The work in the class was far above him, but his mother insisted that he remain with his twin. After one month the work became impossible. His mother called the school counselor for an appointment. Case 13 was crying and spending four or five hours a day on homework. A plan was worked out with the mother and teacher to give easier work. The rest of the year was uneventful. He still has serious academic problems, and the obvious difference between him and other pupils has aggravated his emotional problems.

Case No. 13
8 years, 5 months
Boy



Case No. 13
Age 8 yr - 5 mo.
Boy



CASE 14

Boy -- Fifteen Years, Nine Months

School Behavior

This boy's teachers say that there is no doubt that he is capable of at least average performance in high school, but they are also convinced that he is completely resistant to doing anything but failing work. He is a natural target for school "bullies," either physically or verbally. Anything which is taboo is the most sought-after activity. The fact that he is bright makes it even more difficult for him to get along with others.

Test Results

Case 14 has mental ability well above average. His achievement test results are not too far below what is expected from his intelligence; however, his performance in class is so inconsistent from day to day that he cannot earn average grades. This boy has great potential but has emotional problems which prevent him from using his capabilities.

Verbal	Raw score	Scaled score	Performance	Raw score	Scaled score
Information	23	14	Picture Completion	16	13
Comprehension	19	12	Picture Arrangement	52	20
Arithmetic	16	18	Block Design	45	13
Similarities	19	14	Object Assembly	28	13
Vocabulary	46	10	Coding	55	10
(Digit Span)	12	12			
Sum of Verbal Tests		67	Sum of Performance Tests		69

Verbal Scale	67	121
Performance Scale	69	127
Full Scale	136	126

Medical Report (ten months after study began)

History of Present Problem. The patient has not been doing too well in school academically during the past year or two. He has a great tendency to daydream and dawdle. There is no particular difficulty with acting-out behavior. He presents no problems in management at home or at school. At the present time he has completed the third year of high school and in general has had poor grades throughout his entire high school experience. He has had a rather profound growth spurt during the past year and in the same period began to smoke. The father feels that he is basically lazy, but he has a great deal of empathy for his son's problems and is most anxious to obtain some help for him.

Past History. The patient is the first of two children. The mother's pregnancy was uneventful. He was delivered by forceps after a labor of several hours. Apparently a version was necessary to make the delivery more satisfactory. The patient weighed 8 lbs., 9 oz. There was no neonatal distress. There was no jaundice and no convulsions. His growth and development were thought to be within normal limits. He did fairly well while he was in grammar school. His tonsils and adenoids were removed at the age of five years. He has had measles, mumps, chicken pox, and German measles, all without event. He has had no serious illness or any injuries.

Family History. The family consists of the father, age 40; mother, age 41; a sister, age 10. There is no family history of emotional disease or organic nervous system disease.

Physical Examination. Examination revealed a white male, 15 years and nine months old, whose general condition is good. His height is 172 cms., weight, 61.5 kgms.; blood pressure, 110/72; pulse, 80; respiration, 20. The patient's general condition was excellent, and his state of nutrition was good. He had achieved development of secondary sex characteristics and in general was well into pubescence. His genitalia were pubertally enlarged; he had axillary and pubic hair. The remainder of the general physical examination was not remarkable.

Neurological Examination. The patient was right handed and alert and cooperative during the examination. His development appeared to be within limits expected for his age. Examination of the cranial nerves revealed them to be intact. The optic fundi were normal. Examination of the motor system revealed no evidence of spasticity or weakness. Sensory examination revealed no abnormalities. The myotatic reflexes were physiological and symmetrical. The abdominal and cremasteric reflexes were present. The plantar reflexes were flexor. The patient's coordination was excellent, and there was no evidence to suggest any cerebellar disturbance. The patient's gait and speech were normal. The remainder of the examination was not remarkable.

An electroencephalogram was done on June 5, 1959. The tracing was obtained, using ten electrodes, with both scalp-to-scalp and scalp-to-ear techniques. A portion of the recording was obtained during the patient's light sedated sleep. There is a fairly rhythmical basic frequency of 10 cycles per seconds (cps) appearing primarily over the posterior scalp regions. During drowsiness, random, slow 5- to 7-cps waves are present with symmetrical 14-cps sleep spindles and biparietal humps during light sleep. Hyperventilation did not significantly alter the record. During a portion of the period of drowsiness, briefly appearing 14-cps positive spikes were present along with another period of questionable 6-cps positive spiking. Photic stimulation did not significantly alter the record. Impression: very mildly abnormal EEG with rare 14-cps spiking appearing over the posterior scalp regions during drowsiness.

Summary and Impression. The clinical manifestations are primarily those of a basic emotional disturbance. On clinical-neurological appraisal and electroencephalographic examination, there is no evidence to suggest any organic disease of the central nervous system.

School Placement

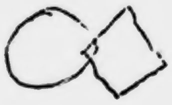
During the 1958-59 school year, Case 14 participated in a group counseling class which met one hour a day, five days a week. The emphasis in this program was on vocational and educational guidance, help with peer and authority relationships, and other topics of interest to the group.

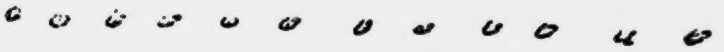
Follow-up (three years after study began)

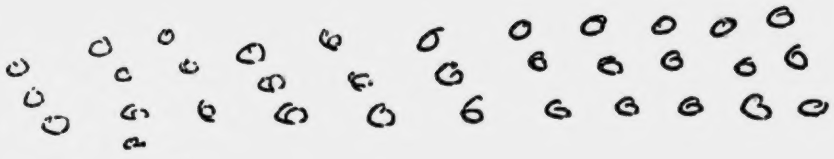
Case 14 graduated from high school in June, 1961. He is reportedly enrolled in night school at a junior college. He states that he is studying in the general field of electronics. He won a place in a nationwide "advanced amateur" contest in photography in his senior year. In the eleventh and twelfth grades, his school behavior was marginal. He made Cs and Ds, but these grades were an improvement over what he earned in the tenth grade. Even though he was not an outstanding student in high school, by the time he graduated, school personnel felt that he had some chance of making out as an adult.

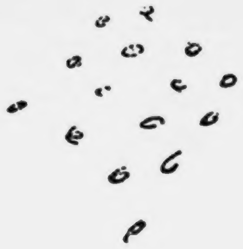
He worked at odd jobs in a photo laboratory prior to the summer of 1961. He then found full-time work with a landscaper.

Case No. 14
15 years, 8 mo.
Boy









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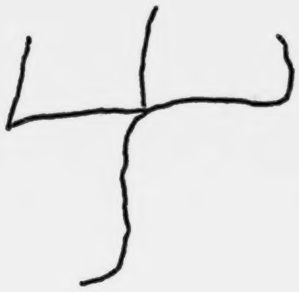

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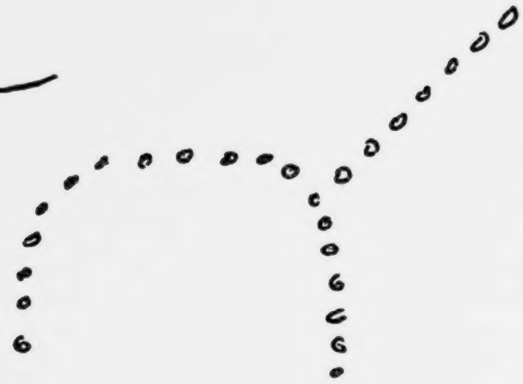

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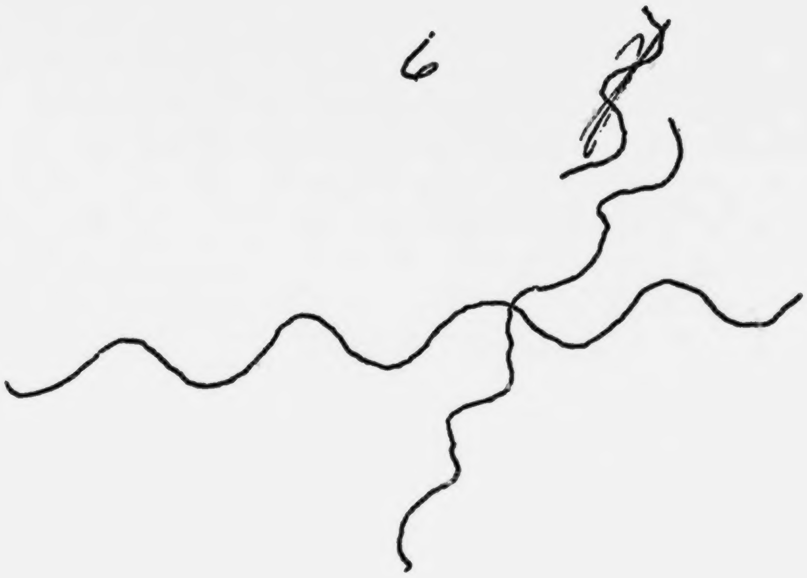

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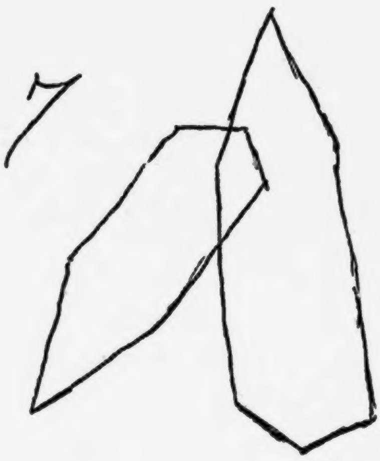

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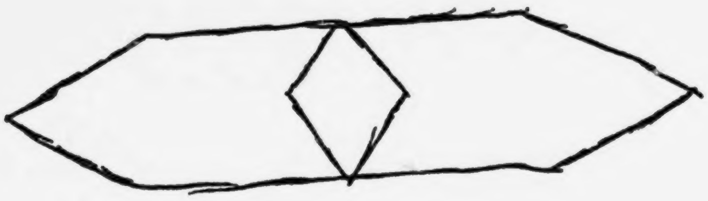
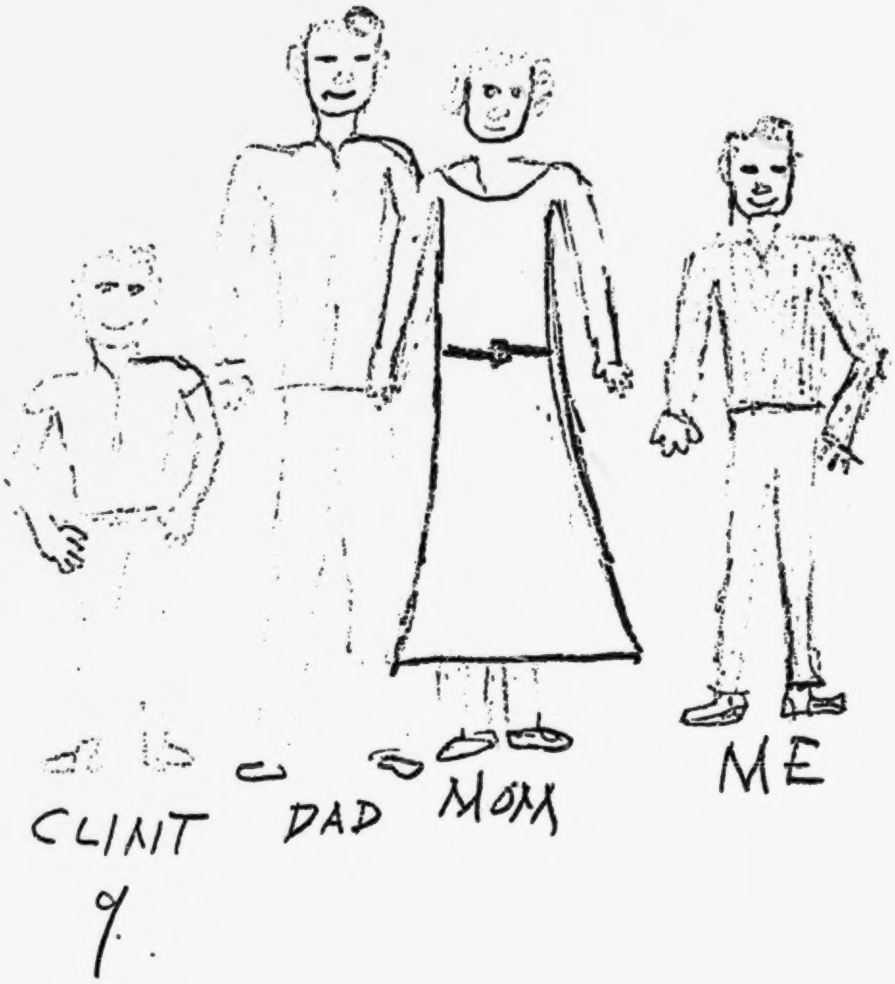


Case No. 14
15 years, 8 mo.
Boy



CASE 15

Girl -- Nine Years, Eleven Months

School Behavior

This girl's teachers state that she is so disturbed by conditions at home that she cannot concentrate on schoolwork. She is below average in group participation, does not complete her work on time, cannot follow directions, is unable to work independently, and has little feeling of personal worth or accomplishment. She is an anxious, disturbed little girl. Her father is an alcoholic who beats the mother and runs the family out of the home when drunk.

Test Results

An individual intelligence test placed her in a slow-learning category. Her achievement is extremely poor, and she is eligible for special reading help to assist her in keeping up with the classroom achievement.

Verbal	Raw score	Scaled score
Information	9	8
Comprehension	7	7
Arithmetic	6	8
Similarities	11	14
Vocabulary	22	8
(Digit Span)	6	6
Sum of Verbal Tests		51

Performance	Raw score	Scaled score
Picture Completion	8	8
Picture Arrangement	12	7
Block Design	6	8
Object Assembly	14	8
Coding	31	11
Sum of Performance Tests		42

	Scaled score	IQ
Verbal Scale	43	91
Performance Scale	42	89
Full Scale	85	89

Medical Report (ten months after study began)

History of Present Problem. For the past year, the patient has been in a special class for the purpose of assisting her with reading. She apparently will go into the fifth grade in September on the condition that she go to summer school this current session. Most of her difficulties apparently are thought to be due to her reading impairment. In addition, the patient has a slight articulatory speech disturbance. According to the mother, she presents no particular problem in behavior. She is a reasonably happy child.

Past History. Mother's pregnancy was uneventful. She was in labor for about one hour. The patient was a full-term, normal, spontaneous delivery and weighed 5 lbs., 14 oz., at birth. She was breast-fed for about one year, and no difficulties were encountered. There was no neonatal distress. She had no illnesses during infancy. Her early development was thought to be normal. She walked at eight months of age and talked at 15 months. She was toilet-trained at 18 months of age. She had measles at three years, mumps at six, and chicken pox at eight years, all of which were uneventful. The patient had enuresis until the age of seven.

Family History. The family consists of the father, age 34, house painter; mother, age 30; brother, age 11; sister, age 7. The family are Negroes and have come to California from New Orleans, Louisiana. The patient is right-handed; her maternal grandfather was left-handed.

Physical Examination. The examination reveals an almost ten-year-old Negro female whose general condition is excellent. Her weight is 37 kgms.; height, 141 cm.; blood pressure, 92/70; pulse, 80; respiration, 18. The patient's general state of health is good and no major abnormalities were seen.

Neurological Examination. This examination revealed a right-handed female who was alert and cooperative during the examination. Her overall development appeared to be that expected from her chronological age. Examination of the cranial nerves revealed them to be intact. The optic fundi were normal. Examination of the motor system revealed no evidence of spasticity or weakness. The myotatic reflexes were physiological and symmetrical. The abdominal reflexes were present; the plantar reflexes were flexor. Sensory examination in the modalities of pain, touch, vibration, and position sense was normal. Stereognosis was intact. With eyes closed the patient had some difficulty in identifying her right side from her left on tactile examination. She basically appeared to be right-handed, right-eyed, and right-footed. The patient's coordination was good, and there was no evidence to suggest a cerebellar disturbance. The patient's gait was normal. Her speech was characterized by a slight articulatory defect, some of which might be explained by her New Orleans background.

Laboratory Data. An electroencephalogram was done on July 17, 1959, using ten electrodes, with both scalp-to-scalp and scalp-to-ear techniques. A portion of the tracing was obtained during light, natural sleep. There is a fairly rhythmical basic frequency of 8 cps appearing primarily over the posterior scalp region. There is some low-voltage, fast, 15- to 20-cps activity appearing anteriorly. During drowsiness, the rhythmical runs of 5-cps waves are present in a mildly paroxysmal fashion along with symmetrical 14-cps sleep spindles and biparietal humps. Hyperventilation for three minutes resulted in an increase in amplitude without clear-cut paroxysmal activation. Photic stimulation at flash rates between 5 and 30 flashes per second did not significantly alter the record. Impression: this was a normal EEG, both waking and sleep, for the patient's chronological age.

Summary and Impression. The patient's primary difficulties appear to be those related to reading. Whether or not there is any relationship to the fact that she has some difficulty differentiating right from left is not clear. Certainly mixed-handedness as such is often associated with reading difficulties, and in general is seen more often in boys than in girls. The patient does not exhibit any particular problems of mixed-handedness, although of interest is the fact that her maternal grandfather was left-handed. The relationship between her reading difficulties and the possibility of mixed-handedness should be a matter of conjecture for the present time. Certainly there is no obvious evidence on clinical neurological examination or electro-encelphalographic study of any organic disease of the central nervous system.

School Placement

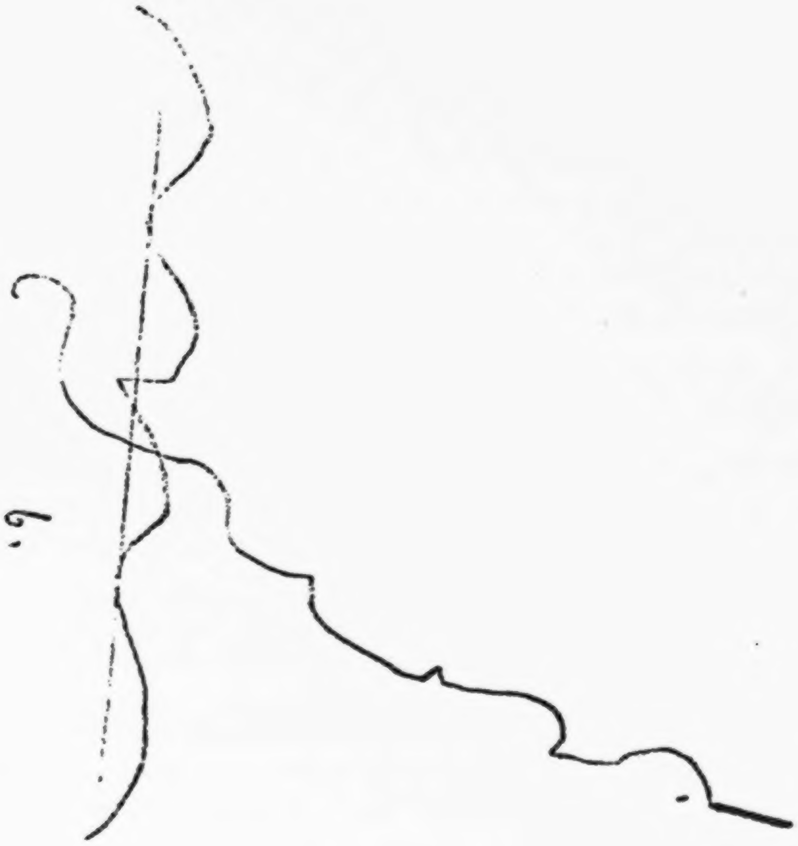
Case 15 was placed in a remedial reading program and received this special help from September, 1957, through June, 1960. She made fairly good gains in achievement, but she needed help with home problems to support the gains made in school.

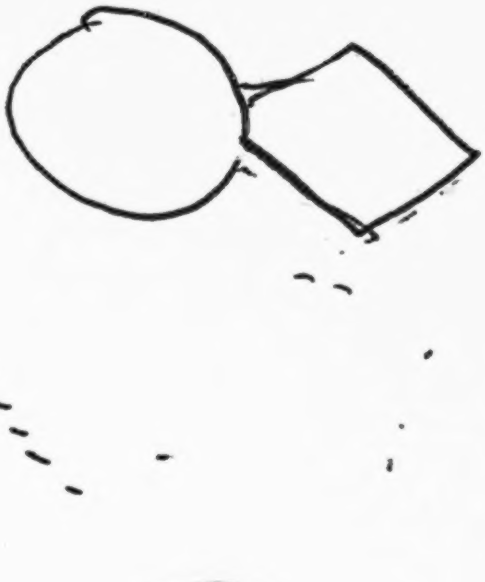
Follow-up (two years, four months after study began)

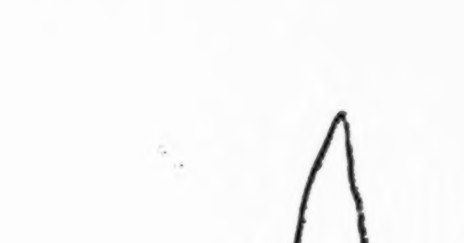
Home problems continue. Case 15 badly needs attention from someone. When she did not return to school in September, 1960, a follow-up indicated that she had moved to some other school district. No further contact has been made.

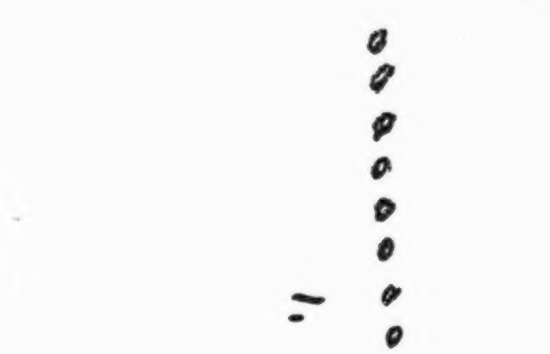
Case No. 15
8 years, 9 mo.
Girl

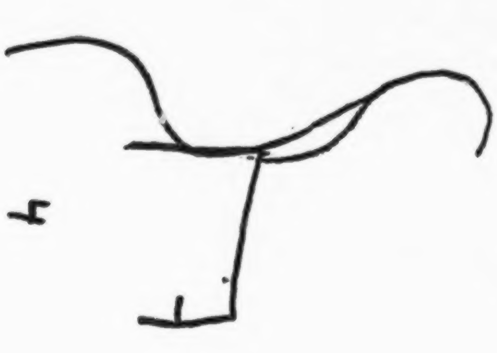
very disorderly arrangement of sequences.

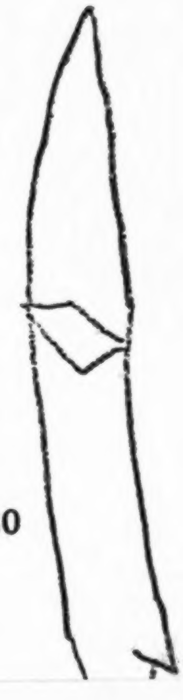


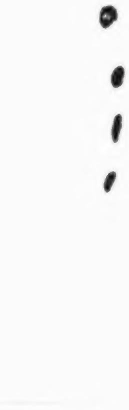


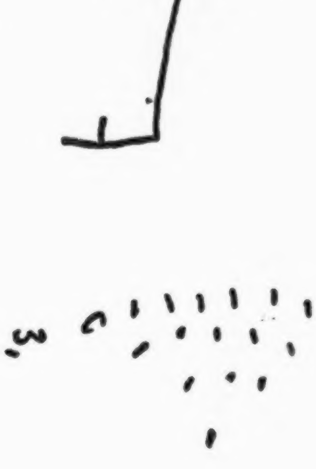


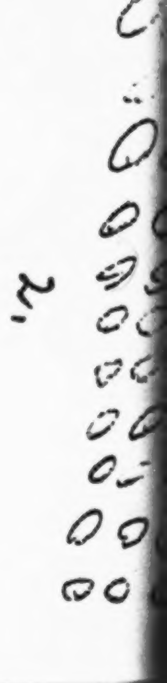






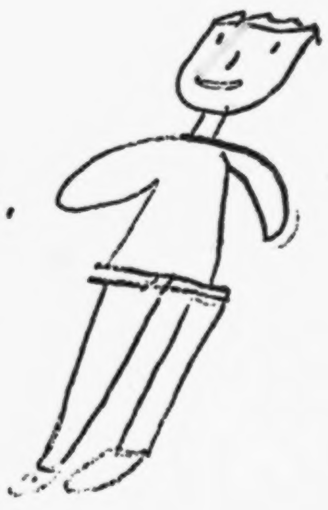






Case No. 15
8 years, 9 mo.
Girl

Ralph
10 years old
He is outside playing.
He wants to become
a docter.



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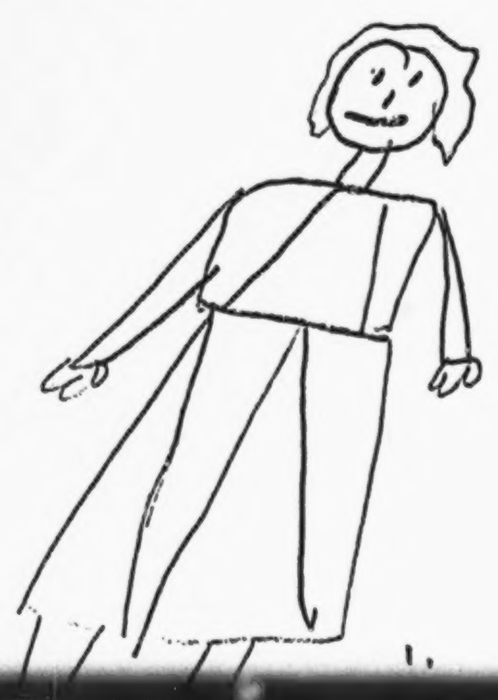


1.

Sandy
6 years old
She is playing with
the boy.
She wants to become
a housewife.

CASE 16

Boy -- Twelve Years, Three Months

School Behavior

This boy's teachers report that he is quite a problem in the classroom. He has a very short attention span. He is constantly talking and argues with his teacher on any point. He cannot accept standards, teachers have a hard time controlling him, and, needless to say, he is a school discipline problem.

Test Results

Individual intelligence tests place Case 16 in an average-ability classification. His scores on group intelligence tests are in the borderline range. Classroom achievement tests results are consistent with the group ability test scores and find him far below his grade in achievement. Group tests reflect achievement more than do individual tests; therefore, it would be difficult to set an achievement standard which he could successfully meet without further knowledge of his success with remedial learning tasks.

Verbal	Raw score	Scaled score
Information	11	8
Comprehension	9	7
Arithmetic	8	8
Similarities	9	10
Vocabulary	31	9
(Digit Span)	9	9
Sum of Verbal Tests		51

Performance	Raw score	Scaled score
Picture Completion	7	6
Picture Arrangement	34	13
Block Design	9	7
Object Assembly	20	9
Coding	43	12
Sum of Performance Tests		47

	Scaled score	IQ
Verbal Scale	43	21
Performance Scale	47	96
Full Scale	90	93

Medical Report (one year, two months after study began)

History of Present Problem. The patient has apparently been attending a special class for the past two years. He was referred there originally because of poor learning. He had not failed any specific grades. In this special class he is apparently doing "seventh-grade work." He reads at the fifth-grade level and has the ability to perform arithmetic at the sixth-grade level. The mother states that the patient has "been bad" ever since he was a baby. He cannot take any kind of instruction. The mother states that the patient has been nervous and could not write at all for several years but can do so since September, 1959. The mother feels that the patient is a lot like his father; that is, he is rather belligerent and hard to get along with; but she feels that in the last six months he has "come out of it a bit." The patient had an electroencephalogram several years ago which was reported as being normal. The mother does not feel that the other children are as belligerent as the patient although at times they have this difficulty.

Past History. The mother's pregnancy was thought to be normal except for the fact that she was told that there was an Rh incompatibility factor between her husband and her. The mother was told that the patient would be born dead and that they originally had planned to perform the delivery by Caesarean section two weeks prior to the estimated time of labor onset, but this did not occur. Labor was about two hours in duration, and the patient weighted 8½ lbs. at birth. No neonatal difficulties were encountered. The patient was breast-fed for about two and a half months, and no feeding difficulties were observed. The patient's development is thought to have been within normal limits. The mother has felt that the patient has always been rather clumsy. She "can't let him get away with anything." The patient apparently does rather well in sports. He is described as "fearless" and as a good swimmer and diver. Four years ago the patient was injured on the head when he fell against a rock. He was dazed a moment or so, but no unusual occurrences were observed at that time. He had chicken pox, measles, and mumps between five and seven years of age. His tonsils were removed with his adenoids in 1956. There is some history of ear infections between six and seven years of age.

Family History. The family consists of the father, age 35; mother, age 35; two older children, ages 17 and 15, who are children of the mother's first marriage; Case 16, age 12; and a sister, age 5 years. A brother apparently had some difficulty during which he was rather restless at night while sleeping and occasionally wakened, but this has not been a major problem in the past couple of years. As mentioned before, this patient is described as being a lot like his father, rather belligerent. The mother describes her husband as believing it is normal to be aggressive. The mother has great difficulty in feeling that this is right.

Physical Examination. Physical examination reveals a 12-year-old Caucasian male whose general condition is good. Height 151 cms.; weight, 51 kgs.; blood pressure, 90/60; pulse, 72, respiration, 18. General physical condition appears to be good. There were minimal signs of prepubescence. No abnormalities were observed on general physical examination.

Neurological Examination. Examination revealed the patient to be right-handed. He was alert and cooperative, and his intellectual development appeared to be that expected for his chronological age. Examination of the cranial nerves revealed them to be intact. The optic fundi were normal. Examination of the motor system revealed no evidence of spasticity or weakness. The myotatic reflexes were physiological and symmetrical throughout. The abdominal and cremasteric reflexes were present. The plantar reflexes were flexor bilaterally. The patient's coordination was excellent, and there was no evidence to suggest any cerebellar dysfunction. Sensory examination revealed no abnormalities to pain, touch, position sense, vibration, stereognosis, or two-point discrimination. The patient's gait and speech were normal. The remainder of the examination was not remarkable.

Laboratory Data. An electroencephalogram was obtained on November 23, 1959, using ten electrodes, with both scalp-to-scalp and scalp-to-ear techniques. A portion of the recording was obtained during light sedated sleep. There is a fairly rhythmical basic frequency of 8 to 9 cps appearing over the posterior scalp regions. During drowsiness, random slow 5- to 7-cps waves are present with symmetrical 14-cps sleep spindles and biparietal humps. Hyperventilation for three minutes and photic stimulation did not significantly alter the record. Impression: a normal electroencephalogram, both awake and asleep, for the patient's chronological age.

Summary and Impression. The clinical manifestations reflect essentially a basic emotional disturbance along with some learning difficulties in school. Careful clinical neurological examination and electroencephalogram did not reveal any evidence to suggest any organic disease of the central nervous system.

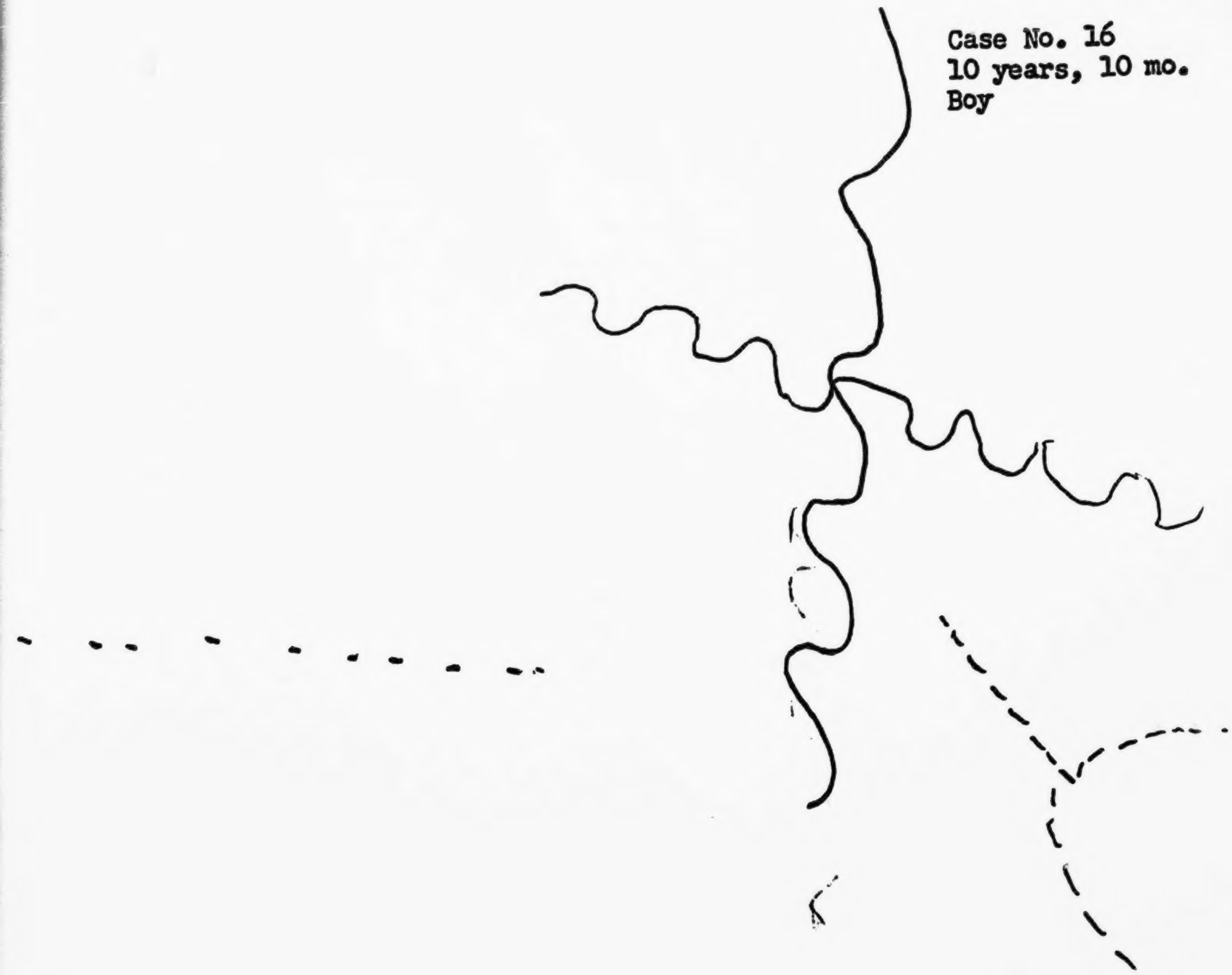
School Placement

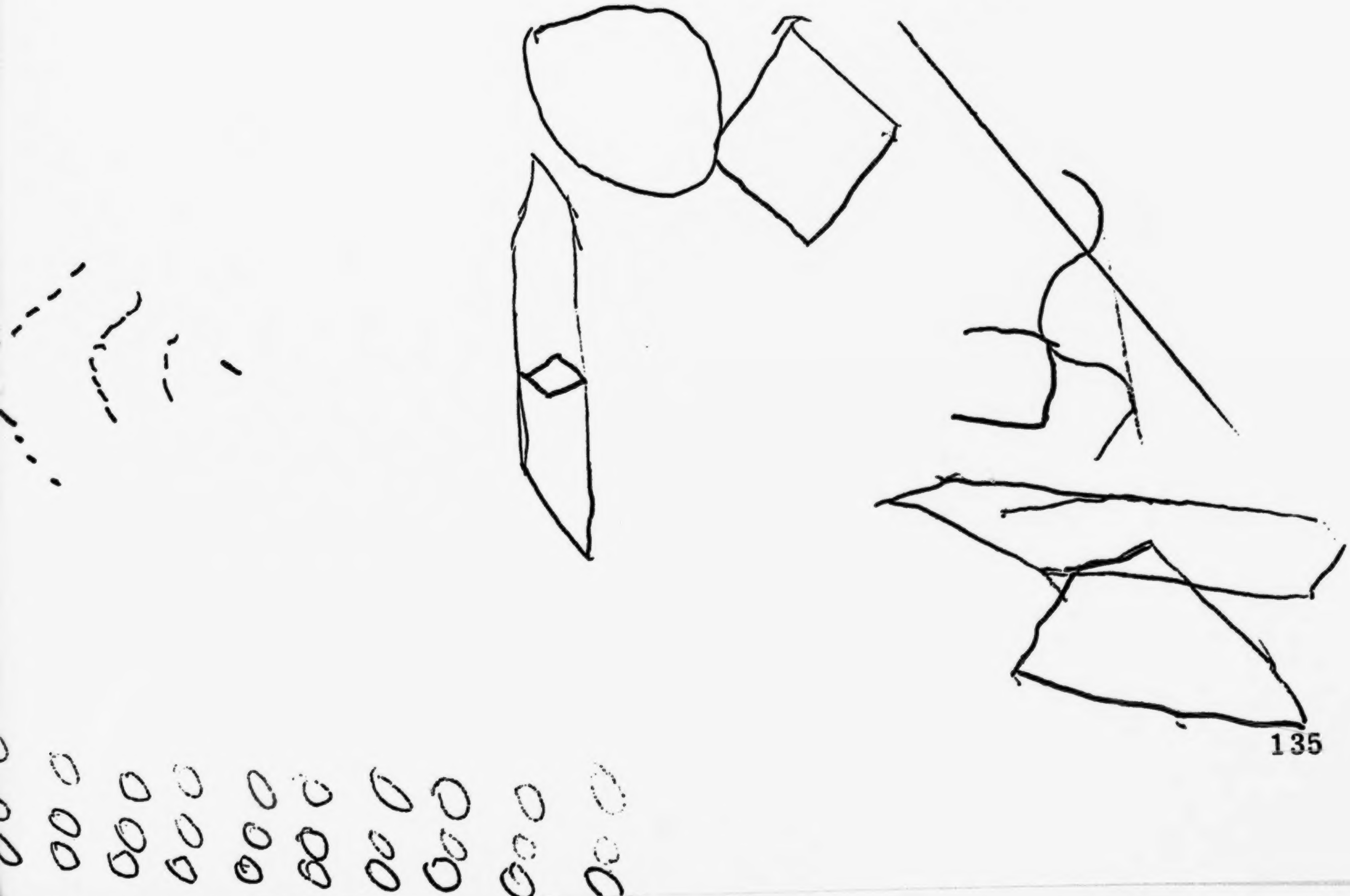
Case 16 was placed in a special class with other boys with learning and behavior problems. The emphasis in his educational plan was on remedial help and improvement in the ability to make and keep behavior and discipline commitments in school. During the two years in the special class, his improvement was remarkable. His achievement test scores were consistent with the prediction made from the individual testing.

Follow-up (two years, nine months after study began)

At the end of two years in the special class, Case 16 has done exceptionally well. He was able to return to a regular class. His adjustment during the fall semester of 1960 was generally good, but he had difficulties with his teacher. His and his family's behavior standards are in conflict with what the school expects, and this complicates his school problems. There was a noted improvement in his attitude later in the school year. In September, 1961, there were no school problems, but Case 16 stole a car. At school he was full of "big talk" about the theft and getting drunk. He hangs around with his 20-year-old half brother, who is a delinquent. Although the special class program helped him a lot, the prognosis is not good for Case 16. The home environment is too influential in keeping him from maintaining the social gains he made in the special program.

Case No. 16
10 years, 10 mo.
Boy





November 25, 1959

Case No. 16
10 years, 10 mo.
Boy

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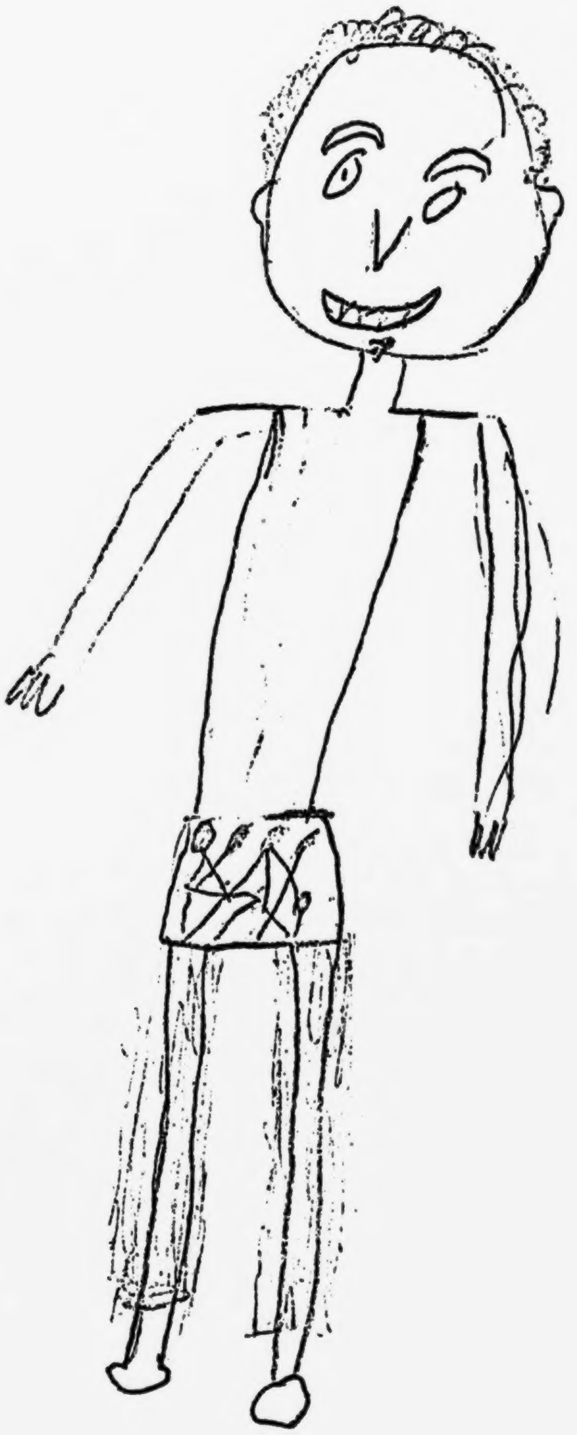


CASE 17

Boy -- Eleven Years, Two Months

School Behavior

Case 17 has weekly headaches, is tense, nervous, and subject to motion sickness. He has had serious learning problems in school from the time he began. His teachers explain his aggressive behavior as being immature, and he is childish, nervous, and unhappy. He likes school but doesn't want to cooperate. He constantly moves around the room; is restless, inattentive, impulsive, and infantile. He can neither attend well nor concentrate. He is described as careless and prone to give up easily, and he would rather run from difficulties than face them. He is a lonesome little boy who hasn't much to grow on either in himself or from external support.

Test Results

Both individual and group intelligence test results place Case 17 in an average-ability classification. His achievement is below expectancy for his ability and below grade level.

Verbal	Raw score	Scaled score
Information	8	6
Comprehension	12	11
Arithmetic	7	8
Similarities	7	9
Vocabulary	27	9
(Digit Span)	8	8
Sum of Verbal Tests	51	

Performance	Raw score	Scaled score
Picture Completion	7	6
Picture Arrangement	31	12
Block Design	15	10
Object Assembly	20	10
Coding	28	8
Sum of Performance Tests	46	

	Scaled score	IQ
Verbal Scale	43	91
Performance Scale	46	94
Full Scale	89	92

Medical Report (one year, one month after study began)

History of Present Problem. The patient had learning difficulties in school. He was retained in the second grade after having considerable difficulty in reading. For the past two terms, he has been in a special ungraded room. Most of his difficulties have been in the area of reading. He has had no overt manifestations of acting-out behavior. In the past several months, he has been complaining of headaches which occur about once a week. These do not necessarily interfere with his physical activities. He is described as being a rather tense and nervous child who is subject to motion sickness.

Past History. The mother's pregnancy was uneventful. She was in labor for about seven hours. The patient weighed 7 lbs., 12 oz., at birth. No neonatal difficulties were encountered. He was fed by bottle and had minimal feeding difficulties for about two months. His neuromuscular development was thought to be within normal limits. He was able to walk at one year of age. At nine months of age, the patient apparently fell, and nine sutures were required to repair the laceration sustained to the forehead. The mother also states that the patient has had two or three minor "concussions" without any difficulties. He had measles at one year of age and scarlet fever at three years of age.

Family History. The family consists of the mother, age 35; and the patient. The father, age 39, is not living with the family. The parents are divorced.

Physical Examination. Examination reveals an 11-year-old Caucasian male whose general condition appears to be good. Since he is under the influence of sedation, an appropriate estimate of his intellectual ability cannot be made. His height is 153 cms.; weight, 37 kgs.; blood pressure, 92/60; respiration, 18; pulse, 74. There is a small "cafe au lait" spot over the anterior aspect of the right thigh measuring 0.5 by 4 cms. No other similar areas are observed. The remainder of the general physical examination is not remarkable.

Neurological Examination. Examination revealed the patient to be right-handed. Although under the influence of sedation following an electroencephalogram, he was alert and cooperative. Because of the sedation, an accurate appraisal of the patient's intellectual abilities could not be made. There was some evidence to suggest that he might be somewhat retarded. The cranial nerves were examined and found to be intact. The optic fundi were normal. Examination of the motor system revealed no evidence of spasticity or weakness. The myotatic reflexes were physiological and symmetrical throughout. The abdominal and cremasteric reflexes were present. The plantar reflexes were flexor bilaterally. The patient's coordination was good, and there was no evidence to suggest any cerebellar dysfunction. Sensory examination revealed no abnormalities to pain, touch, position sense, vibration, stereognosis, and two-point discrimination. The patient's gait and speech were normal. The remainder of the examination was not remarkable.

Laboratory Data. An electroencephalogram was obtained on October 19, 1959, using ten electrodes, with scalp-to-scalp and scalp-to-ear technique. There is a fairly rhythmical basic frequency of 10 to 11 cps appearing primarily over the posterior scalp regions. During the patient's drowsiness, 5- to 7-cps waves are present with symmetrical and biparietal humps and 14-cps sleep spindles during light sleep. Hyperventilation for three minutes and photic stimulation did not significantly alter the record. The record was interpreted as being normal for the patient's chronological age both awake and asleep.

Summary and Impression. The clinical manifestations reflect basically a learning difficulty, difficulty in school (manifested essentially by inability to read), and difficulty with other areas of learning. The etiology of these difficulties is not apparent. From clinical neurological examination and electroencephalographic observation, no organic disease of the nervous system was apparent.

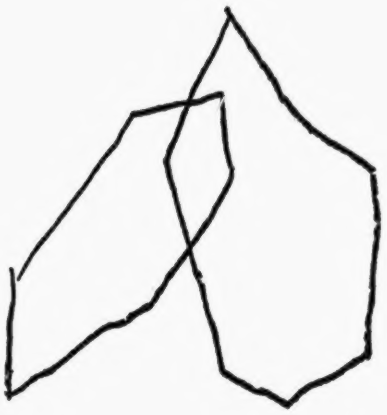
School Placement

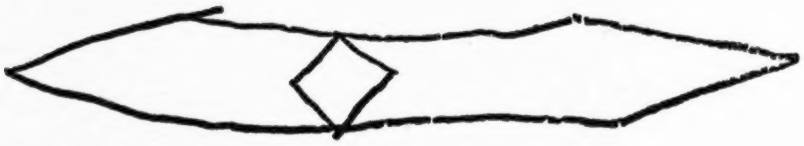
Case 17 was placed in a special class with other boys with serious learning and behavior problems. After two years' placement, he had made little if any gain in measured achievement, and the prognosis for improvement in schoolwork and attitude is poor.

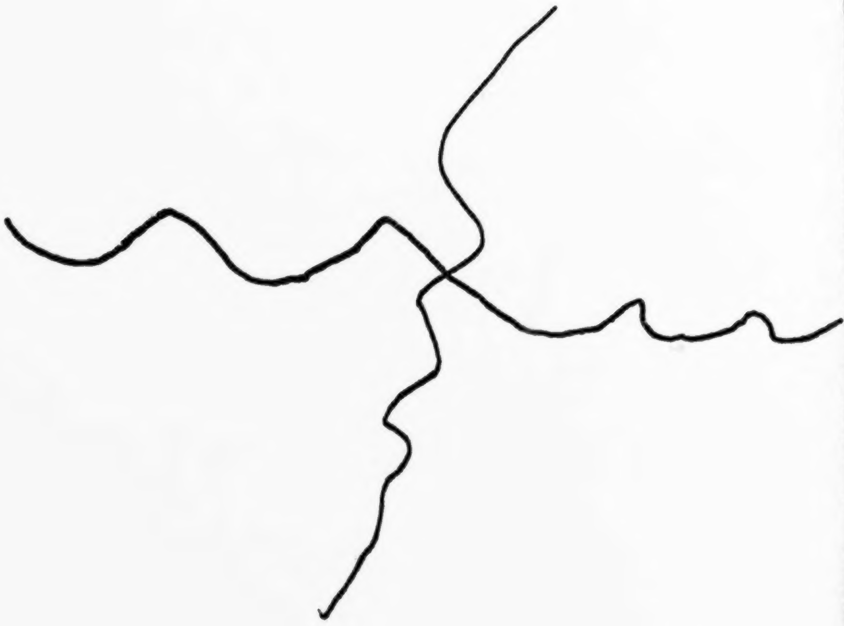
Follow-up (two years, nine months after study began)

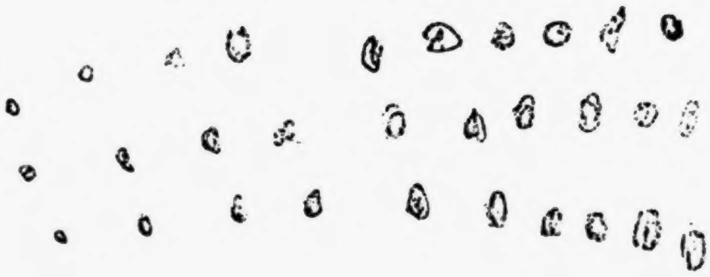
Case 17 is the boy helped least by the special class. He grows taller and that is about all. He cannot work without individual help. Emotionally and socially, he is much retarded; his behavior is more fixated than retrogressed. Between 1959 and 1961, he made about one year's growth in achievement. He will remain in the special class for one more year and then go on to high school. The prognosis is very poor.

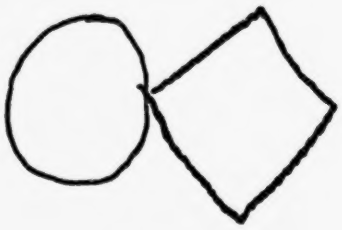
Case No. 17
9 years, 8 mo.
Boy

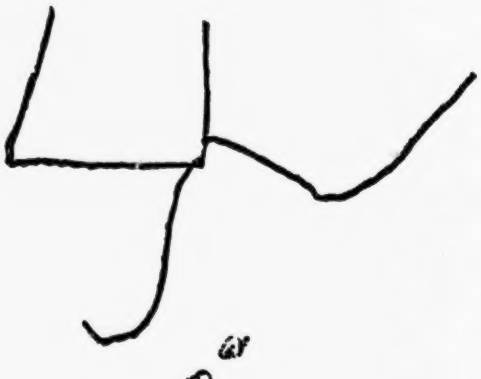


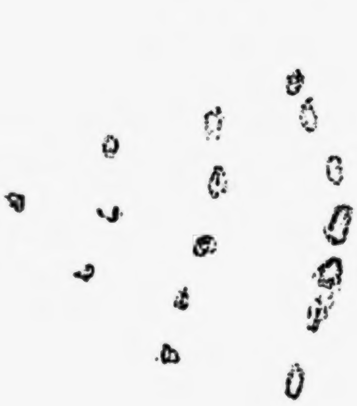


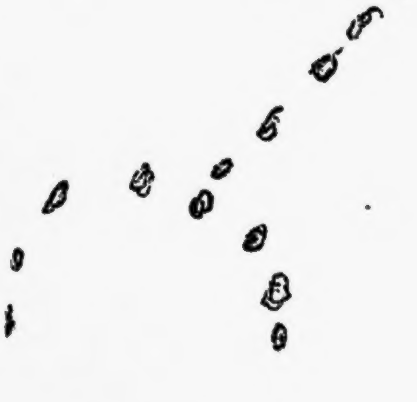




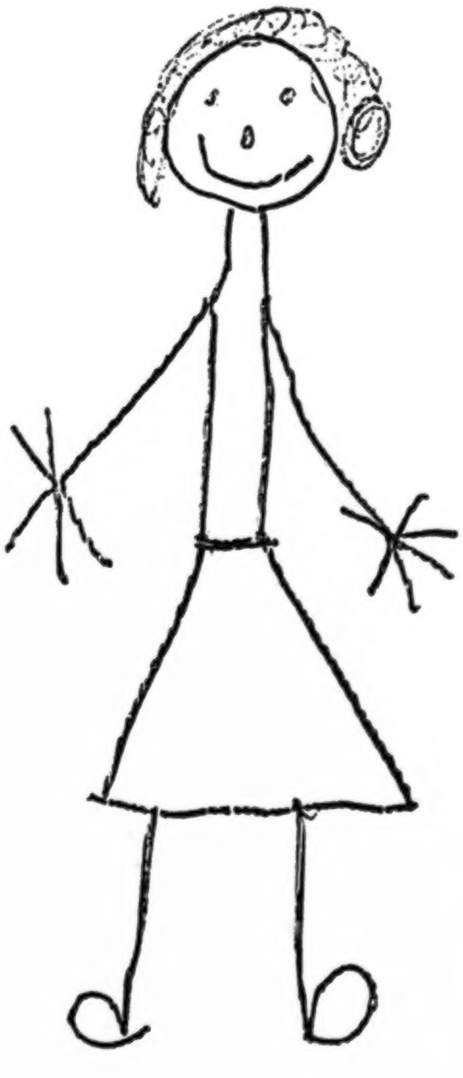








Case No. 17
9 years, 8 mo.
Boy



CASE 18

Boy -- Twelve Years, Nine Months

School Behavior

Case 18 has had a learning difficulty since he started school. His mother feels that this may be because he began school too early and the fact that he failed the first grade. He is tense, tends to cling to his mother, and is always afraid, especially of physical contact during physical education. Even though his teachers report that he is not a behavior problem, he tattles, pretends to be sick when it is time for a test, and is handicapped in school learning. He likes school but plays with only a few children, and he is immature socially.

Test Results

Individual intelligence tests indicate that he has average ability. His achievement was about at grade level in the first grade, following the year of retention, but subsequently on three annual tests, he showed no growth in school learning tasks. His ability predicts average achievement in school, but he has never met this standard.

Verbal	Raw score	Scaled score	Performance	Raw score	Scaled score
Information	14	10	Picture Completion	13	12
Comprehension	14	11	Picture Arrangement	34	12
Arithmetic	7	6	Block Design	6	5
Similarities	11	11	Object Assembly	20	8
Vocabulary	30	8	Coding	27	6
(Digit Span)	7	5			
Sum of Verbal Tests	51-43		Sum of Performance Tests	43	
Verbal Scale	43	91			
Performance Scale	43	90			
Full Scale	86	90			

Medical Report (one year, two months after study began)

History of Present Problem. The mother states that the patient has had a "learning block" since starting school. She feels that this, in some ways, is because the patient began school too early, at four and a half years of age. He failed the first grade and has been in a special class for the past two years. The mother characterizes the patient as rebelling against anything that is required of him. He is a rather tense youngster who tends to cling to his mother. The patient was adopted at the age of 11 days. He weighed 7 lbs. at birth. No neonatal difficulties were recorded. He had no feeding difficulties. He has a sister, age ten years, who was adopted at the age of two years. His mother states that they fight all the time. Both youngsters are aware of the adoption.

The patient has had no serious illnesses or injuries. His neuromuscular development was thought to be normal. He had a rather difficult time with toilet training, and the mother states that this was done rather forcibly between two and three years of age. The patient had enuresis until five or six years of age. He had measles, chicken pox, and mumps between five and seven years of age. The mother describes the patient as being always afraid, even of physical contact. He is afraid of physical activities and dodges the ball when it is thrown at him. The mother feels that she may have been somewhat overprotective of her son but not of her daughter. The patient is described as running to his mother to tattle and being rather selfish. He has great difficulty in relating to his peers.

Family History. The family consists of the father, age 50; the mother, age 51; and the two children.

Physical Examination. Height, 159 cms.; weight, 45 kgs., blood pressure, 90/60; respiration, 18; pulse, 74. The patient's general condition is good. General physical examination does not reveal any major abnormalities.

Neurological Examination. Examination reveals the patient to be right-handed. He was alert and cooperative during the examination. His intellectual development appears to be that expected for his chronological age. He is especially tense and bites his fingernails. The cranial nerves were examined in detail and found to be intact. The optic fundi were normal. Examination of the motor system revealed no evidence of spasticity or weakness. The myotatic reflexes were physiological and symmetrical throughout. The abdominal and cremasteric reflexes were present. The plantar reflexes were flexor bilaterlly. The patient's coordination was good, and there was no evidence to suggest any specific cerebellar dysfunction. Sensory examination revealed no abnormalities to pain, touch, position sense, vibration, stereognosis, and two-point discrimination. The patient's gait and speech were normal. The remainder of the examination was not remarkable.

Laboratory Data. An electroencephalogram was done on November 23, 1959, using 12 electrodes, with scalp-to-scalp and scalp-to-ear techniques. A portion of the recording was obtained during the patient's light sedated sleep. While he is awake, there is a fairly rhythmical basic frequency of 8 to 9 cps appearing over the posterior scalp areas. Later in the recording, low-voltage, fast 15- to 20-cps activity appears anteriorly, probably secondary to sedation. During the boy's drowsiness and light sleep, 5- to 7-cps waves are present with some briefly appearing 14-cps sleep spindles. There are no clear-cut focal or paroxysmal findings during the recording. Hyperventilation for three minutes and photic stimulation did not significantly alter the record. The record is interpreted as being normal, both awake and asleep, for the patient's chronological age.

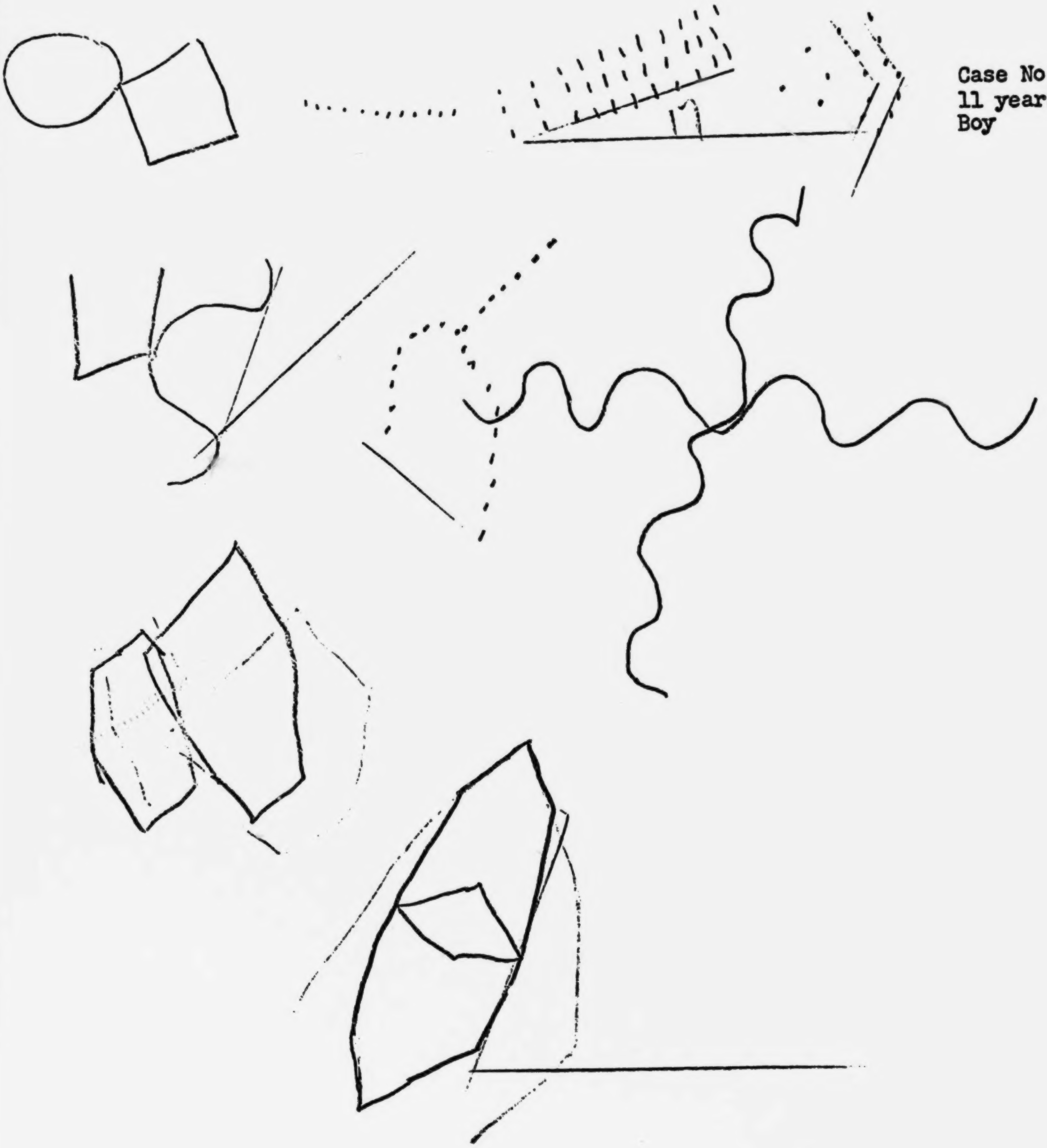
Summary and Impression. The clinical manifestations reflect primarily a basic emotional disturbance. Careful clinical, neurological evaluation and electroencephalographic examination did not reveal any evidence to suggest any organic disease of the central nervous system.

School Placement

Case 18 was placed in a special class with other boys with similar learning and behavior problems. The emphasis of the special teacher was on improvement of academic skills and maintenance of behavior standards. Even though he was absent for all the tests given during the period of the research project, a test administered later indicated that he had managed to achieve close to grade-level standards after considerable effort on his part and the part of the teacher.

Follow-up (two years, nine months after study began)

He returned to regular classwork in the seventh grade. His teacher made no request for help, and things seemed to go relatively smoothly. Some of the boys picked on him, but this was stopped. Without the intensive help provided in the special class, he is having a difficult time maintaining his achievement growth in a regular class. On the whole, however, he has done well. His mother has not come to school as regularly as in the past, so her pressure on her son may be lessening. The indications are that he will continue to be academically and socially retarded although he was helped in the special class.



Case No. 18
11 years, 2 mo.
Boy

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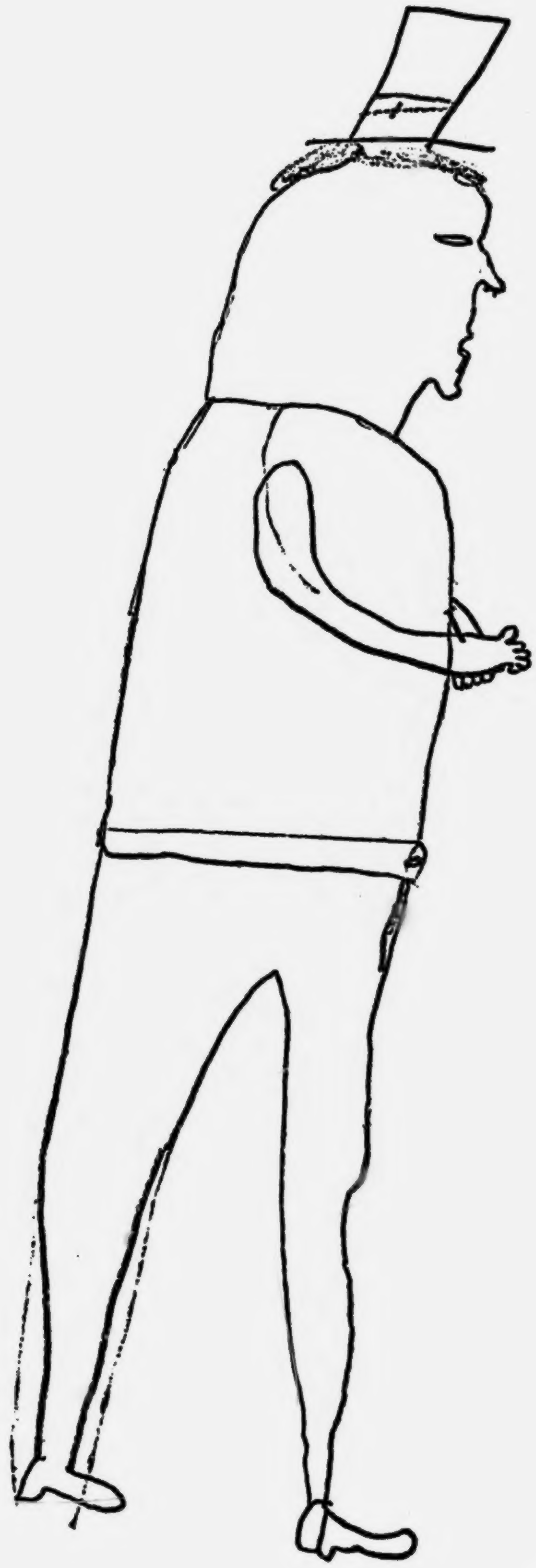
Case No. 18
11 years, 2mo.
Boy



CASE 19

Boy -- Twelve Years, Six Months

School Behavior

This boy is in need of constant attention from the teacher and avoids peers for contact with adults. At the time of identification in the state research project, little school data were available. He was one of the pupils identified by the procedures developed by the research staff and would not have come to the notice of the school if it had not been for the identification process.

Test Results

His achievement tests indicate approximately grade-level achievement, which is consistent with an individual intelligence test result placing him in an average-ability classification

Verbal	Raw score	Scaled score	Performance	Raw score	Scaled score
Information	14	11	Picture Completion	9	8
Comprehension	16	13	Picture Arrangement	34	13
Arithmetic	8	8	Block Design	28	12
Similarities	13	13	Object Assembly	23	11
Vocabularly	32	9	Coding	30	7
Sum of Verbal Tests	54		Sum of Performance Tests	51	

	Scaled score	IQ
Verbal Scale	54	105
Performance Scale	51	101
Full Scale	105	104

Medical Report (one year, two months after study began)

History of Present Problem. The patient has had some difficulties in school, and for the past two years he has been attending a special room in school doing approximately seventh grade work. The patient apparently is in need of a great deal of attention and is constantly seeking some type of identification with adults. He does not successfully establish relationships with his peers. He was adopted at the age of eight. He previously had been in many foster homes. The previous history is not too well documented. He apparently has had some childhood diseases and had a fracture of the left fifth finger; all of these apparently improved without any unusual sequelae. The patient has been receiving some psychotherapy since July, 1959, and has been attending regularly for about six months. The parents feel that there has been some improvement since this time.

Family History. Father, age 45; mother, age 45. The patient is an only child.

Physical Examination. Examination reveals a $12\frac{1}{2}$-year-old Caucasian male whose general condition is good. Height, 155.5 cms.; weight, 43 kgms.; blood pressure, 94/68; respiration, 18, pulse, 72. The patient's general physical condition was good. There were a few small scars over the scalp secondary to previous trauma. There is a mild first-degree hypospadias. The remainder of the general physical examination was not remarkable.

Neurological Examination. Examination revealed the patient to be right-handed. He was alert and cooperative and his intellectual development appeared to be that expected for his chronological age. The cranial nerves were examined in detail and found to be intact. The optic fundi were normal. Examination of the motor system revealed no evidence of spasticity, rigidity, or weakness. The myotatic reflexes were physiological and symmetrical throughout. The patient's coordination was good, and there was no evidence to suggest any specific cerebellar dysfunction. The abdominal and cremasteric reflexes were present. The plantar reflexes were flexor bilaterally. Sensory examination revealed no abnormalities to pain, touch, position sense, vibration, stereognosis, and two-point discrimination. The patient's gait and speech were normal. The remainder of the neurological examination was not remarkable.

Laboratory Data. An electroencephalogram was obtained on November 30, 1959, using ten electrodes, with scalp-to-scalp and scalp-to-ear techniques. There is a poorly organized basic frequency of 8 to 9 cps with some scattered 5- to 7-cps activity appearing anteriorly. During drowsiness, the amount of 5- to 7-cps activity increases with fairly symmetrical biparietal humps and 14-cps sleep spindles appearing anteriorly during light sleep. At no time during the tracing are there any focal or paroxysmal abnormalities. Hyperventilation for three minutes resulted in the appearance of some slow 1- to 3-cps waves, but this was not paroxysmal in type. Photic stimulation induced some driving at the flash rates between 15 and 20 flashes per second. The record was interpreted, however, as being normal, both awake and asleep, for the patient's chronological age.

Summary and Impression. The clinical manifestations reflect fundamentally a basic emotional disturbance. Careful clinical neurological evaluation and electroencephalographic examination did not reveal any specific evidence to suggest an organic disease of the central nervous system.

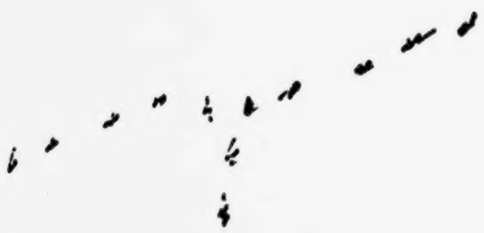
School Placement

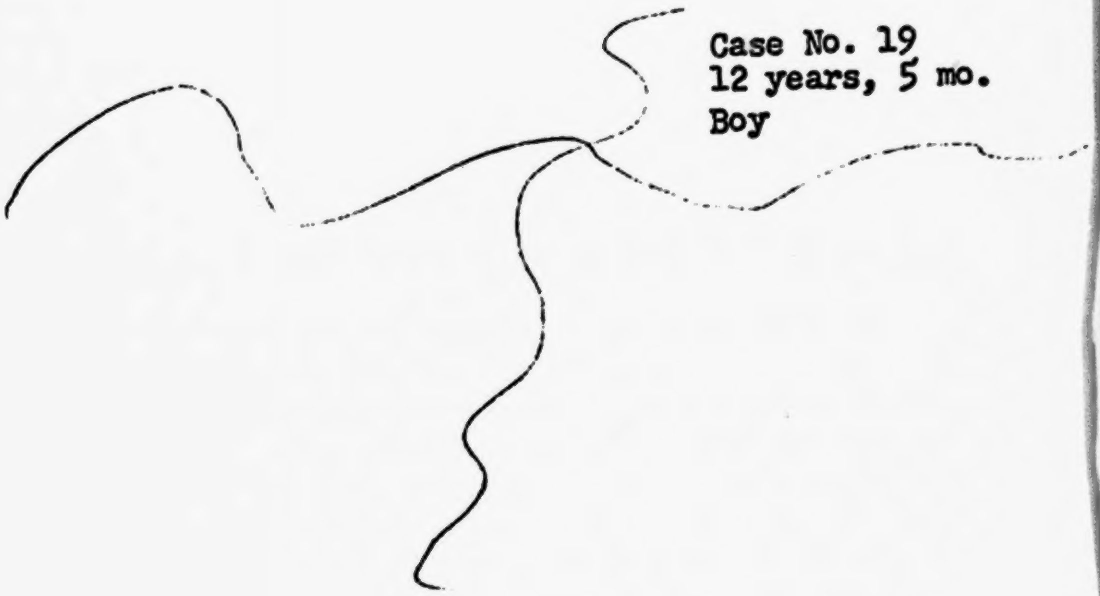
Case 19 was placed in a special class with other boys with learning and behavior problems. No follow-up achievement test data were available since he was absent on the days that the tests were given.

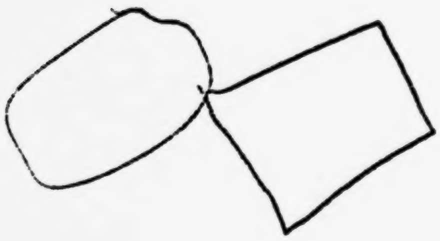
Follow-up (two years, nine months after study began)

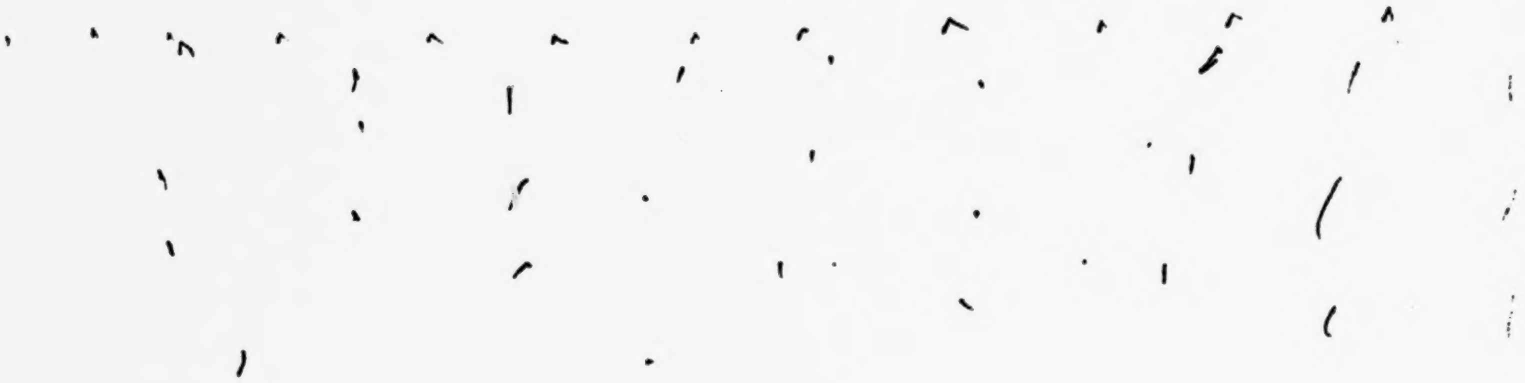
He went back to a regular class from the special placement, and his adjustment there was only fair. He was very unpopular with his peers and needed continual supervision. He was suspended for foul language in the classroom and for the way he talked to girls about sex. The father came to talk with the principal and counselor. The mother had left his supervision completely to the father. Case 19 went to high school, and at this time there were no complaints. The prognosis is very poor since it is expected that he will soon fall into the usual pattern of having difficulty with his peers at school.

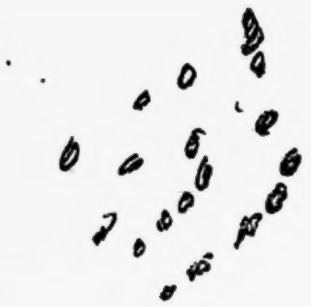
Case No. 19
12 years, 5 mo.
Boy

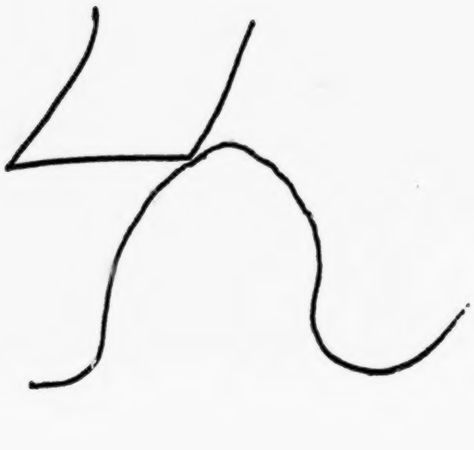












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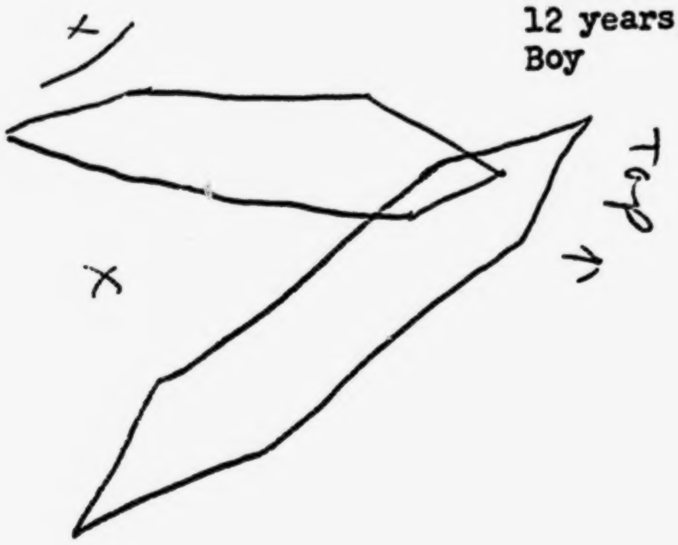
Top.

Case No. 19
12 years, 5 mo.
Boy



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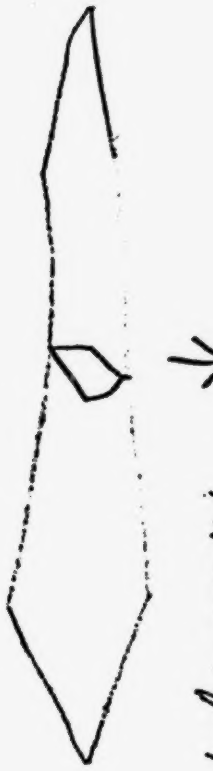

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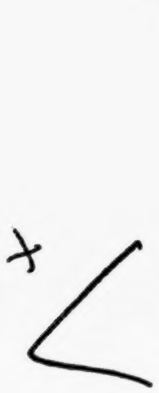
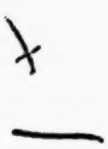
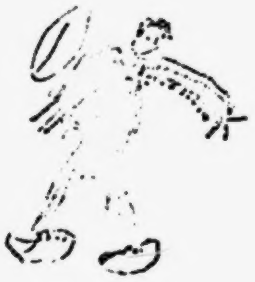




November 25, 1959

Case No. 19
12 years, 5 mo
Boy



CASE 20

Boy -- Fifteen Years, Eleven Months

School Behavior

The boy's teachers describe him as being disinterested and lacking in energy and vigor. He is always alert to every chance for throwing spitballs and creating other classroom diversions, but, if he wished to, he could make a substantial contribution to classroom activities. He has poor work habits and an apathetic attitude.

Test Results

Individual test results are typical of a boy with above-average intelligence. His marks in school range from "incomplete" to F. No teacher surveyed for ratings of Case 20 was able to say that he was doing well in school with the exception of the study hall teacher who thought that he was fine.

Verbal	Raw score	Scaled score	Performance	Raw score	Scaled score
Information	21	12	Picture Completion	14	11
Comprehension	17	10	Picture Arrangement	37	11
Arithmetic	14	13	Block Design	44	13
Similarities	15	11	Object Assembly	28	13
Vocabulary	54	13	Coding (mazes)	65	13
Sum of Verbal Tests		60	Sum of Performance Tests		61
Verbal IQ	60	113			
Performance IQ	61	115			
Full Scale IQ	121	115			

Medical Report (nine months after study began)

History of Present Problem. The patient has had many difficulties in adapting to school and at times has had problems of a delinquent nature. The mother apparently does not have great insight into his emotional difficulties.

Past History. The patient has been well most of his life. His mother's pregnancy was uneventful. She was in labor for several hours, and the delivery was thought to be normal. The patient weighed 6 lbs., 4 oz., at birth. He was bottle-fed and no difficulties were encountered. His development was thought to be within normal limits. His mother feels that he has been accident-prone since early childhood. At the age of eight years he was knocked off a horse and had a period of impaired memory for several hours. He was not unconscious at that time. Also at eight years, he was injured when a log was thrown at him and was unconscious for a few moments. He has had the usual childhood diseases with no particular complications. The patient is thought to have asthma about once every three years. He has a stuffy nose most mornings on awakening, which subsides after an hour or so. The patient apparently had breath-holding spells with loss of consciousness as an infant, particularly when frustrated in any way.

Family History. Father, age 41, is an engineer. His sister, age 19, is withdrawn at times, depressed, and also has asthma and emotional difficulties; she is a freshman at college. A brother, age 14, is, according to the mother, brilliant like his father. A maternal grandfather committed suicide, using carbon monoxide, after World War I. The remainder of the history is not remarkable.

Physical Examination. Physical examination reveals an almost 16-year-old white male whose general condition is good. His height is 169 cm.; weight, 55.2 kgms.; blood pressure, 110/70; pulse, 82, respiration, 18. The general physical examination reveals the patient's overall condition to be good. There are no abnormalities.

Neurological Examination. Examination reveals a 16-year-old, right-handed, white male who was alert and cooperative during the examination. He appeared to be of average intelligence. The cranial nerves were examined and found to be intact. The optic fundi were normal. Examination of the motor system revealed no evidence of spasticity or weakness. The myotatic reflexes were physiological and symmetrical. The abdominal and cremasteric reflexes were present. The plantar reflexes were flexor. Sensory examination revealed no abnormalities in the modalities of pain, touch, vibration, or position. Stereognosis was normal. The patient's coordination was quite good, and there was no evidence to suggest any cerebellar dysfunction. The patient's gait and speech were normal. The remainder of the examination was not remarkable.

Laboratory Data. An electroencephalogram was done on May 29, 1959. The tracing was obtained, using 12 electrodes, with scalp-to-scalp and scalp-to-ear techniques. There is a very rhythmical basic frequency of 10 to 11 cps appearing in all leads, although most prominent over the posterior scalp areas. During portions of this recording, there is a mild amplitude asymmetry with the lower potentials appearing over the left occipital region. There are no frequency changes, however, in association with this asymmetry. Hyperventilation for three minutes did not significantly alter this record. Impression: normal EEG.

Summary and Impression. The clinical manifestations reflect primarily a behavioral disorder with some acting-out difficulties which tend to assume a delinquent pattern. A careful neurological and electroencephalographical examination revealed there is no evidence to suggest any organic disorder of the central nervous system.

School Placement

During the 1958-59 school year, Case 20 participated in a group counseling class for one hour a day, five days a week. The group leader planned activities designed to give opportunities for exploring educational and vocational goals and for discussing school-related problems and relationships with peers and adults.

Follow-up (three years after study began)

Case 20 graduated from high school at the end of the 1961 summer school session. His overall grade point average was 2.1, a C average. Disciplinary referrals to the vice-principal had dropped off markedly during his senior year. Previously, he was referred often for calling a teacher by her first name, bad behavior during assembly, and painting signs on the campus of a rival school.

His mother remarried in August. Case 20 thinks his stepfather is "OK." His brother is an outstanding student. Case 20 drinks alcoholic beverages with impunity and is very much involved with girls. He has worked part time as a truck driver. The vice-principal's report after graduation summed up his impression of Case 20 with this statement: "Case 20 has made splendid progress, and I feel he is on his way to good citizenship."

Case No. 20
15 years, 0 mo.
Boy
Draw a Person